Faculty of Engineering & Technology

Syllabus

For

Bachelor of Architecture (B. Arch.)
(Program Code: ET0241)

(2020-21)

Approved by the Academic Council vide resolution no ……

INDEX

1. INTRODUCTION (B.ARCH. CURRICULUM)

The Under-Graduate program "Faculty of Architecture and planning, Jaipur" is based on international and national best practices of education, institute charter and faculty feedback. The curriculum is first step towards 'Outcome Based Education' to bring substantial equivalency of the architectural education offered at the institute with international standards. To plan the substantial equivalency, each course is written with expected educational outcomes followed by details, so that it provides a clear outline of the academic experience received by the students and its compliance with acceptable standards and practices.

B.Arch. (Bachelor of Architecture) is an undergraduate degree in the field of architecture. This five-year full-time programme is a blend of theatrical and practical knowledge for students to learn the art of planning, designing and constructing physical structures of various kinds. From ideating to mapping and overseeing the construction, a qualified architect is involved at every stage of any construction project.

I. Bachelor of Architecture Highlights In Tabular Form:

Course level	Undergraduate
Duration	5 years
Examination type	Semester system
Eligibility	10+2 with 50% marks

To become an architect, interested candidates need to have a rational and artistic bent of mind along with problem-solving abilities. The career scope of B.Arch. graduates in India is tremendous with the flourishing construction sector. A qualified B.Arch. graduate has the option to choose their line of work from a range of areas ranging from consultants to architectural designers.

II. B.Arch. Eligibility And Entrance Exams:

To study a full-time B.Arch. programme, students must fulfil the eligibility requirements given below:

- Aspirants must have passed their 10+2 examination or equivalent with Mathematics as one of the subjects.
- They must have secured a minimum of 50 per cent marks (45 per cent marks for reserved category) in 10+2
- Should have passed 10+3 Diploma (any stream) recognised by Central/state governments with 50 per cent aggregate marks or
- Should have completed their International Baccalaureate Diploma, after 10 years of schooling, with not less than 50 per cent marks in aggregate and with Mathematics as compulsory subject of examination.
- Entrance exams for B.Arch :National Aptitude Test in Architecture (NATA) and JEE

2. LEARNING OUTCOMES-BASED APPROACH TO CURRICULUM PLANNING AND DEVELOPMENT: (LOACPD)

Following illustrates nature of study, program objectives and learning outcome for the course

I. Nature and extent of Bachelor of architecture:

Architecture is the design, visualization, aesthetic coordination, structural conceptualization, specification and supervision and giving responsible direction to

the erection of buildings and built environments, effected through the medium of plans, specifications, investigations, consultations, contract documents and evaluations.

The profession/practice of architecture encompasses the provision/delivery of services in relation with the site, design, physical planning, construction, addition, alteration, renovation, remodelling, restoration, conservation or adaptive reuse of a building or a group of buildings.

II. **Aims of Bachelor's Degree Programme in Bachelor of Architecture:**

The Architecture subject engages students with both the sciences and the arts. The course provides an introduction to the design and construction of the built environment as well as giving an insight into architectural history and theory. On completion of the subject, students will gain a basic understanding of the architectural design process and be able to distinguish relevant historical and contemporary precedents in architecture.

III. **Motive behind curriculum planning and development**

The committee considered and discussed the following factors for LOCF for the graduates:

i. Framing of syllabi
ii. Learners attributes
iii. Qualification descriptors
iv. Programme learning outcomes
v. Course learning outcomes
vi. Necessity of having elective courses
vii. Academic standards

3. PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

The objectives of the 5-year Bachelor of Architecture program are aimed at integrating knowledge based and skill-based pedagogies in a balanced manner, essential to enable the students to become responsive and sensitive architects. With this in mind the overall objectives of the Learning Outcomes-based Curriculum Framework (LOCF) for Bachelor of architecture degree are:

PEO1: Understanding the basic philosophy and fundamental principles of the multidimensional aspects and multi-faceted nature of architecture.

PEO2: Preparing the students to acquire and enhance creative problem-solving skills including critical thinking and assessment and developing design concepts and solutions and presentation of these skills.

PEO3: Performing standard proficiencies, in harmony with the scope of local practice of architecture in particular and the global practice in general i.e. making the student market ready or employable.

PEO4: Preparing the students to work effectively in a multi-disciplinary/inter-disciplinary team in the building industry, by providing 360o knowledge of architecture.

4. GRADUATE ATTRIBUTES (GAs):

The graduate attributes in Bachelor of Architecture are the summation of the expected course learning outcomes mentioned in the end of each course. Some of them are stated below.

GA1: **Research related skills:** Ability to use information effectively in a range of contexts and create new knowledge and understanding through writing and literacy skills and the process of research and inquiry.

GA2: **Conceptual Skills**: Ability to intellectual, relation between theory and practice or aesthetics & Proportions.

GA3: **Communication Skills:** Ability to communication skills. Compassionate and physically, mentally & spirituallyfit.

GA4: **Discipline specific knowledge**: Ability to use engage with and draw upon extensive technical knowledge and skills effectively, efficiently and professionally across a range of contexts and disciplines.

GA5: **Documentation, techniques of representation and communication**: Ability to recognise and value communication as a tool for negotiating and creating new understanding, interacting with others, and furthering their own learning.

GA6: **Problem-solving**: Ability to critically and creatively design, innovate and solve problems using diverse skills and knowledge in a range of contexts.

GA7: **Multicultural competence**: Ability to critically and contextually draw upon an extensive body of historical theoretical, social and political knowledge when thinking through ideas and issues.

GA8: **Professionalism: Social and environmental ethics** : Ability to hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities.

GA9: **Professionalism: Collaboration and practice**: Ability to have an understanding of collaborative practice and professional procedure, financial, legal and practice management.

GA10: **Moral and ethical awareness:** Not Greedy**,** Generous Master of Senses**,** Honest**,** Straight Forward**,** Just (*NyayaPriya*)**,** Unbiased, Free from seven vices, Attentive**.**

5. QUALIFICATION DESCRIPTORS (QDs):

A qualification descriptor of B. ARCH undergraduate programme indicates the generic outcomes and graduate attributes expected for the award of the Bachelor of Architecture. Qualification descriptors also describe the academic standard for a specific qualification in terms of the

i. levels of knowledge
ii. understanding,
iii. skills and
iv. competencies
v. attitudes
vi. values

that the holders of the qualification are expected to attain and demonstrate, in terms of actual outputs after acquiring B.ARCH. These descriptors also indicate the common academic standards for the qualification and help the degree-awarding bodies in designing, approving, assessing and reviewing academic programmes. The learning experiences and assessment procedures are designed to provide every student with the

opportunity to achieve the Intended Learning Outcomes (ILO). The qualification descriptors reflect both disciplinary knowledge, professional skills and understanding architecture. The students who will complete five years of full-time study of an undergraduate programme of B.ARCH will be awarded a Bachelor's Degree. Some of the expected learning outcomes that a student should be able to demonstrate on completion of a degree-level programme includes the following:

i. Apply architectural design principles to the development of three-dimensional form and space.
ii. Communicate design proposals using a variety of media.
iii. Develop research and analytical skills to assist in the identification of essential architectural design precedent to inform the design process.
iv. Identify the influence of selected architectural historical periods and types of societal factors that form the precedent for architecture today.
v. Analyse the impact of environmental factors on architectural design.
vi. Undertake the architectural design process to develop an appropriate outcome to an architectural brief.

6. PROGRAMME LEARNING OUTCOMES (PLOs)

The objectives of the program are translated into a number of learning outcomes. These outcomes are directly related to the profession of architecture, the way it is practiced in the country and the knowledge components that are necessary for such professional practice. Towards the end, the students who complete this program will possess the ability to:

PLO1: Understand the real-life situation in architectural practice and recognize the dialectic relationship between people and the built environment (especially with reference to the Indian sub-continent) with reference to their needs, values, behavioural norms, and social patterns.

PLO2: Work collaboratively toward synthetic design resolution which integrates an understanding of the requirements, contextual and environmental connections, technological systems and historical meaning with responsible approach to environmental, historical and cultural conservation.

PLO3: Apply visual and verbal communication skills at various stages of the design and delivery process.

PLO4: Thrive in a rigorous intellectual climate which promotes inquiry through design research.

PLO5: Produce professional quality graphic presentations and technical drawings/documents.

PLO6: Critically analyse building designs and conduct post-occupancy evaluations.

PLO7: Work in a manner that is consistent with the accepted professional standards and ethical responsibilities.

PLO8: Work in collaboration with and as an integral member of multi-disciplinary/interdisciplinary design and execution teams in the building industry.

PLO9: Conduct independent and directed research to gather information related to the problems in architecture and allied fields.

PLO10: Students able to work effectively in a multi-disciplinary/inter-disciplinary team in the building industry, by providing 360o knowledge of architecture.

Mapping of Graduate Attributes (GAs) and Programme Learning Outcomes (PLOs):

	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
PLO1	■									
PLO2		■								
PLO3			■							
PLO4				■						
PLO5					■					
PLO6						■				
PLO7							■			
PLO8								■		
PLO9									■	
PLO10										■

7. PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Demonstrate critical thinking through a self-reflective process of conceptualization and design thinking that is open to consideration of alternative perspectives by analyzing, evaluating, and synthesizing ideas and information gathered through applied research grounded in information literacy.

PSO2: Implement complex two and three-dimensional graphic representation techniques using a wide variety of traditional and digital media, to reflect on and explain the architectural design process to a wide range of stakeholders.

PSO3: The knowledge and ability to apply a design decision-making process through appropriate technical documentation in a manner that is client-centered, sustainable, aesthetic, cost effective, and socially responsible.

8. TYPES OF COURSES

1. Courses in a programme may be of four kinds: Core, Elective, Ability Enhancement and Skill Enhancement.

a) Core Course: -

There may be a Core Course in every semester. This is the course which is to be compulsorily studied by a student as a requirement to complete the programme in a said discipline of study.

b) Elective Course: -

Elective course is a course which can be chosen from a pool of papers. It may be

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain
- Nurturing student's proficiency/skill.

An Elective Course may be 'Discipline Centric/Specific' & Generic Elective

(i) Discipline Centric/Specific Elective (DSE): Elective courses offered under the main discipline/subject of study is referred to as Discipline Centric/Specific.

(ii) Generic/Open Elective (GE): An elective course chosen from an

unrelated discipline/subject is called Generic/Open Elective. These electives will be focusing on those courses which add generic proficiency of students.

c) Ability Enhancement Compulsory Courses (AECC): -

AECC courses are based upon the content that leads to knowledge enhancement, for example: English Communication, Environment Science/ Studies, etc.

d) Skill Enhancement Courses (SEC): -

SEC Courses provide value based and/or skill-based knowledge and may content both Theory and Lab/Training/Field Work. The main purpose of these courses is to provide students life- skills in hands- on mode so as to increase their employability.

2. List of Papers (B.Arch.)

Core Papers:

- Construction Materials-I
- Architectural Structures-I
- Architectural Drawing-I
- Building Construction-I
- Ecology & Environment
- Construction Materials-II
- Architectural Structures-II
- Introduction to Architecture
- Architectural Drawing-II
- Architectural Design (Basic Design & Field Trip)
- Building Construction-II
- History of Architecture-I
- Building Science-I(Climatology)
- Construction Materials-III
- Architectural Structures-III
- Architectural Design-I
- Theory of Design-I
- Building Construction-III
- History of Architecture-II
- Construction Materials-IV
- Architectural Structures-IV
- Architectural Design-II (Including Measured Drawing camp)
- Theory of Design-II
- Building Construction-IV
- History of Architecture-III
- Building Services-I (Water supply & sanitation)
- Construction Materials-V
- Architectural Structures-V
- Architectural Design-III & Field Trip
- Quantity Surveying & Specification

- Sociology
- Building Construction-V
- Landscape and Site Planning
- History of Architecture-IV
- Building services-II (Electrical Services)
- Construction Materials-VI
- Architectural Structures-VI
- Architectural Design-IV & Field Trip
- Working Drawings
- Building Economics
- Contract Documents & Byelaws
- Building Services-III (Mechanical Services)
- Building Science-II (Acoustics & Illumination)
- Architectural Structures-VII
- Introduction to Settlement Planning
- Architectural Design-V & Field Trip
- Advanced Building Construction
- Introduction to Settlement Planning (studio)
- Leadership& Management Skill
- Housing

Elective Papers:

Discipline Centric/Specific Elective (DSE):

- History of Rajasthan Art
- Building Construction-VI
- Construction Mgmt.
- Low Cost Construction And Techniques
- Design for Disabled
- Vernacular 7JAR10.2
- Urban Conservation
- Urban Design
- Disaster Resistant Structure
- Architecture Development and legislation

Generic/Open Elective (GE):

- Interior Design
- Sustainable Architecture
- Alternate Energy systems in Architecture

Ability Enhancement Compulsory Courses (AECC):

- Communication Skills
- Mathematics

- Introduction to Computers-I
- Introduction to Computer-II
- Computer Application in Architecture-I
- Computer Application in Architecture-II
- Computer Application in Architecture-III
- Computer Applications in Architecture-IV
- Dissertation
- Advanced Study of thesis topic
- Thesis project
- ANANDAM

Skill Enhancement Courses papers (SEC): -

- Arts & Graphics-I
- Arts & Graphics-II
- Arts & Graphics-III
- Workshop Practice (Photography/ Carpentry/Model Making)
- Basic Design & Field Trip
- Structure Lab.-I
- Surveying
- Arts & Graphics-IV
- Surveying Lab
- Educational Tour
- Practical: Training & its presentation / seminar
- Practical: Training & its presentation / seminar
- Professional Skills
- Universal Human Value

Computation of Workload:

Lecture (L) : 1 Credit = 1 Theory period of one hour duration

Tutorial (T) : 1 Credit = 1 Tutorial period of one hour duration

Practical (P) : 1 Credit = 1 Practical period of two hour duration

9. PROGRAM STRUCTURE (B.Arch.)

Semester – I

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	1JAR1	Communication Skills	AECC	30	70	100	1	1	2
2	1JAR2	Mathematics	AECC	30	70	100	2	1	3
3	1JAR3	Construction Materials-I	CORE	30	70	100	2	1	3
4	1JAR4	Architectural Structures-I	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	End Term Ass.	Total Marks	L	S	Credits
5	1JAR5	Architectural Drawing-I	CORE	150	100	250	1	3	4
6	1JAR6	Arts & Graphics-I	SEC	60	40	100	1	2	3
7	1JAR7	Building Construction-I	CORE	60	40	100	1	3	4
8	1JAR8	Introduction to Computers-I	AECC	60	40	100	1	1	2
9	1JAR9	Workshop Practice (Photography/ Carpentry/Model Making)	SEC	60	40	100	1	3	4
10	1JAR10	Basic Design & Field Trip	SEC	60	40	100	1	3	4
11	1JAR11	AANANDAM	AECC	50	50	100	1	1	2
12	1JAR12	Discipline & Extra Curricular Activities.	-	-	-	-	–	–	Non-Credit
		SUB TOTAL		**500**	**350**	**850**	**7**	**15**	**23**
		GRAND TOTAL		**620**	**630**	**1250**	**14**	**19**	**34**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - II

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	2JAR1	Ecology & Environment	CORE	30	70	100	2	1	3
2	2JAR2	Construction Materials-II	CORE	30	70	100	2	1	3
3	2JAR3	Architectural Structures-II	CORE	30	70	100	2	1	3
4	2JAR4	Introduction To Architecture	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**8**	**4**	**12**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	2JAR5	Architectural Drawing-II	CORE	150	100	250	1	3	4
6	2JAR6	Architectural Design (Basic Design &FieldTrip)	CORE	60	40	100	1	3	4
7	2JAR7	Arts & Graphics-II	SEC	60	40	100	1	3	4
8	2JAR8	Building Construction-II	CORE	60	40	100	1	3	4
9	2JAR9	Introduction To Computer-II	AECC	60	40	100	1	2	3
10	2JAR10	AANANDAM	AECC	50	50	100	1	1	2
11	2JAR11	Discipline & Extra Curricular Activities.	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**440**	**310**	**750**	**6**	**14**	**21**
		GRAND TOTAL	**560**	**590**	**1150**	**33**	**14**	**18**	**33**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - III

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	3JAR1	History of Architecture-I	CORE	30	70	100	2	1	3
2	3JAR2	Building Science-I (Climatology)	CORE	30	70	100	2	1	3
3	3JAR3	Construction Materials-III	CORE	30	70	100	1	1	2
4	3JAR4	Architectural Structures-III	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONALS

Sr. No.	Code No.	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	3JAR5	Architectural Design-I	CORE	150	100	250	_	8	8
6	3JAR6	Theory of Design-I	CORE	60	40	100	1	1	2
7	3JAR7	Arts & Graphics-III	SEC	60	40	100	1	2	3
8	3JAR8	Building Construction-III	CORE	60	40	100	1	3	4
9	3JAR9	Structure Lab.-I	SEC	60	40	100	-	2	2
10	3JAR10	Computer Application in Architecture-I	AECC	60	40	100	1	2	3
11	3JAR11	AANANDAM	AECC	50	50	100	1	1	2
12	3JAR12	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**500**	**350**	**850**	**5**	**18**	**24**
		GRAND TOTAL		**620**	**630**	**1250**	**12**	**22**	**35**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - IV

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	4JAR1	History of Architecture-II	CORE	30	70	100	2	1	3
2	4JAR2	Surveying	SEC	30	70	100	1	1	2
3	4JAR3	Construction Materials-IV	CORE	30	70	100	1	1	2
4	4JAR4	Architectural Structures-IV	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**6**	**4**	**10**

SESSIONALS

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	4JAR5	Architectural Design-II (Including Measured Drawing camp)	CORE	150	100	250	_	8	8
6	4JAR6	Theory of Design-II	CORE	60	40	100	1	1	2
7	4JAR7	Arts & Graphics-IV	SEC	60	40	100	1	2	3
8	4JAR8	Building Construction-IV	CORE	60	40	100	1	3	4
9	4JAR9	Computer Application in Architecture-II	AECC	60	40	100	1	2	3
10	4JAR10	Surveying Lab	SEC	60	40	100	_	2	2
11	4JAR11	AANANDAM	AECC	50	50	100	1	1	2
12	4JAR12	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**500**	**350**	**850**	**5**	**18**	**24**
		GRAND TOTAL		**620**	**630**	**1250**	**11**	**22**	**34**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - V

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	5JAR1	History of Architecture-III	CORE	30	70	100	2	1	3
2	5JAR2	Building Services-I (Water supply & sanitation)	CORE	30	70	100	2	1	3
3	5JAR3	Construction Materials-V	CORE	30	70	100	1	1	2
4	5JAR4	Architectural Structures-V	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	5JAR5	Architectural Design-III & Field Trip	CORE	150	100	250	_	8	8
6	5JAR6	Quantity Surveying & specification	CORE	60	40	100	2	1	3
7	5JAR7	Sociology	CORE	60	40	100	1	1	2
8	5JAR8	Building Construction-V	CORE	60	40	100	1	3	4
9	5JAR9	Computer Application in Architecture-III	AECC	60	40	100	_	2	2
10	5JAR10	Elective-I 5JAR10.1 Interior Design 5JAR10.2 History of Rajasthan Art	GE DSE	60	40	100	1	1	2
11	5JAR11	Landscape and Site Planning	CORE	60	40	100	1	2	3
12	5JAR12	AANANDAM	AECC	50	50	100	1	1	2
13	5JAR13	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**560**	**390**	**950**	**7**	**18**	**26**
		GRAND TOTAL		**680**	**670**	**1350**	**14**	**22**	**37**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - VI

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	6JAR1	History of Architecture-IV	CORE	30	70	100	2	1	3
2	6JAR2	Building services-II (Electrical Services)	CORE	30	70	100	2	1	3
3	6JAR3	Construction Materials-VI	CORE	30	70	100	1	1	2
4	6JAR4	Architectural Structures-VI	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONALS

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	6JAR5	Architectural Design-IV & Field Trip	CORE	150	100	250	_	8	8
6	6JAR6	Working Drawings	CORE	60	40	100	_	3	3
7	6JAR7	Building Economics	CORE	60	40	100	1	1	2
8	6JAR8	Building Construction-VI	DSE	60	40	100	1	3	4
9	6JAR9	Elective-II 6JAR9.1 Construction Management 6JAR9.2 Sustainable Architecture 6JAR9.3 Low Cost Construction And Techniques 6JAR9.4 Design for Disabled	DSE GE DSE DSE	60	40	100	1	1	2
10	6JAR10	Computer Applications in Architecture-IV	GE	60	40	100	_	2	2
11	6JAR11	Educational Tour	SEC	-	100	100	_	_	3
12	6JAR12	AANANDAM	AECC	50	50	100	1	1	2
13	6JAR13	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**500**	**450**	**950**	**4**	**18**	**26**
		GRAND TOTAL		**620**	**730**	**1350**	**11**	**22**	**37**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - VII

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	7JAR1	Contract Documents & Byelaws	CORE	30	70	100	1	1	2
2	7JAR2	Building Services-III (Mechanical Services)	CORE	30	70	100	2	1	3
3	7JAR3	Building Science-II (Acoustics & Illumination)	CORE	30	70	100	2	1	3
4	7JAR4	Architectural Structures-VII	CORE	30	70	100	1	1	2
5	7JAR5	Introduction to Settlement Planning	CORE	30	70	100	1	1	2
		SUB TOTAL		**150**	**350**	**500**	**7**	**5**	**12**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credit
6	7JAR6	Architectural Design-V & Field Trip	CORE	150	100	250	_	8	8
7	7JAR7	Advanced Building Construction	CORE	60	40	100	1	2	3
8	7JAR8	Introduction to Settlement Planning (studio)	CORE	60	40	100	1	3	4
9	7JAR9	Dissertation	AECC	120	80	200	_	4	4
10	7JAR10	Elective 7JAR10.1 Alternate Energy systems in Architecture 7JAR10..2 Vernacular Architecture	GE DSE	60	40	100	1	1	2
11	7JAR11	Professional Skills	SEC	60	40	100	1	1	2
12	7JAR12	AANANDAM	AECC	50	50	100	1	1	2
13	7JAR13	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**560**	**390**	**950**	**5**	**20**	**25**
		GRAND TOTAL		**710**	**740**	**1450**	**12**	**25**	**37**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - VIII

S. No.	Code	Subjects	Type	Total Marks.	CREDITS
1	8JAR1	**Practical: Training & its presentation / seminar**	SEC	300	6
		i) Monthly work reports from architects' office			
		ii) Critical appraisal of built projects			
		iii) field documentation of architectural details			
		iv) site supervision of built projects			
		v) Training reports			

Sr. No.	Code No.	Subjects	Internal Marks	External Marks	Type	Total Marks	L	S	Credits
2	8JAR2	AANANDAM	50	50	AECC	100	-	2	2
3	8JAR3	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non- Credit
		GRAND TOTAL	**50**	**50**	**-**	**400**	-	2	**8**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - IX

S. No.	Code	Subjects	Type	Total Marks.	CREDITS
1	9JAR1	**Practical: Training & its presentation / seminar**	SEC	300	6
		i) Monthly work reports from architects' office			
		ii) Critical appraisal of built projects			
		iii) field documentation of architectural details			
		iv) site supervision of built projects			
		v) Training reports			

Sr. No.	Code No.	Subjects	Internal Marks	External Marks	Type	Total Marks	L	S	Credits
2	9JAR2	AANANDAM	50	50	AECC	100	-	2	2
3	9JAR3	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		GRAND TOTAL	**50**	**50**	**-**	**400**	-	2	**8**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Semester - X

Theory

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	10JAR1	Leadership& Management Skills	CORE	30	70	100	1	1	2
2	10JAR2	Housing	CORE	30	70	100	2	1	3
		SUB TOTAL		**60**	**140**	**200**	**3**	**2**	**5**

SESSIONALS

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
3	10JAR3	Elective 10JAR3.1 Urban Conservation 10JAR3.2 Urban Design	DSE	60	40	100	2	1	3
4	10JAR4	Elective 10JAR4.1 Disaster Resistant structure 10JAR4.2 Architecture Development and legislation	DSE DSE	60	40	100	2	2	4
5	10JAR5	Advanced Study of thesis topic	AECC	60	40	100	2	1	3
6	10JAR6	Thesis project	AECC	300	200	500	-	6	6
7	10JAR7	Universal Human Value	SEC	60	40	100	1	1	2
8	10JAR8	AANANDAM	AECC	50	50	100	1	1	2
9	10JAR9	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**590**	**410**	**1000**	**8**	**11**	**20**
		GRAND TOTAL		**650**	**550**	**1200**	**11**	**13**	**25**

Note:

- A student is required to obtain min. 45% marks in individual paper & 50% in aggregate to pass.
- The total credit of B.Arch. Programme is 268. However, the minimum credit required for award of degree shall be 268.
- Out of the total credits, 20% of the credits may be earned by the student through MOOCs (SWAYAM, NPTEL, Coursera etc.). However, the choice of online courses to be approved in advance by Dean/ HoD and Coordinator SWAYAM keeping in view the latest guidelines of the UGC/ respective regulatory body guidelines.

10. COURSE-WISE LEARNING OBJECTIVES, STRUCTURES AND OUTCOMES (CLOSOs)

Semester – I

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	1JAR1	Communication Skills	AECC	30	70	100	1	1	2
2	1JAR2	Mathematics	AECC	30	70	100	2	1	3
3	1JAR3	Construction Materials-I	CORE	30	70	100	2	1	3
4	1JAR4	Architectural Structures-I	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	End Term Ass.	Total Marks	L	S	Credits
5	1JAR5	Architectural Drawing-I	CORE	150	100	250	1	3	4
6	1JAR6	Arts & Graphics-I	SEC	60	40	100	1	2	3
7	1JAR7	Building Construction-I	CORE	60	40	100	1	3	4
8	1JAR8	Introduction to Computers-I	AECC	60	40	100	1	1	2
9	1JAR9	Workshop Practice (Photography/ Carpentry/ Model Making)	SEC	60	40	100	1	3	4
10	1JAR10	Basic Design & Field Trip	SEC	60	40	100	1	3	4
11	1JAR11	AANANDAM	AECC	50	50	100	1	1	2
12	1JAR12	Discipline & Extra Curricular Activities.	-	-	-	-	–	–	Non-Credit
		SUB TOTAL		**500**	**350**	**850**	**7**	**15**	**23**
		GRAND TOTAL		**620**	**630**	**1250**	**14**	**19**	**34**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : COMMUNICAITON SKILLS
Subject Code : 1JAR1

Course Objectives:

- To identify common communication problems that may be holding learners back
- To identify what their non-verbal messages are communicating to others
- To understand role of communication in teaching-learning process
- To learn to communicate through the digital media
- To understand the importance of empathetic listening
- To explore communication beyond language.

Content: In today's world of computers and digital media, a strong communication skill base is essential for learners and for smooth functioning of an organization.

Unit I **Listening:** Techniques of effective listening, Listening and comprehension, Probing questions, Barriers to listening
Speaking: Pronunciation, Enunciation, Vocabulary, Fluency, Common Errors
Reading: Evaluating these ideas and information
Identify the arguments employed in the text
Identify the theories employed or assumed in the text
Interpret the text
To understand what a text says
To understand what a text does
To understand what a text means
Basic Communication Model
Verbal and Non-Verbal Communication
Questioning Skills
Using English Language Properly

- Use of words
- Common Errors in English

Active and Passive Voice

Unit II **Composition-I**

- Précis
- Essay
- Paragraph

Copy Writing for advertisements — characteristics of a good advertisement, aids to make advertisement attractive and effective.

Composition-II

- Technical reports and letter writing
- Speeches, profile of speaker, characteristics of speech.
- Aesthetic and critical writing, kinesics.

Appreciation of scene, figures and images.

Unit III **Writing and different modes of writing**

- Clearly state the claims
- Avoid ambiguity, vagueness, unwanted generalisations and oversimplification of issues
- Provide background information
- Effectively argue the claim
- Provide evidence for the claims
- Use examples to explain concepts

- Follow convention
- Be properly sequenced
- Use proper signposting techniques
- Business & Professional Letter writing
- **Be well structured**

Well-knit logical sequence
Narrative sequence
Category groupings

Unit IV **Digital Literacy**

- Role of Digital literacy in professional life
- Trends and opportunities in using digital technology in workplace
- Internet Basics
- Introduction to MS Office tools

Unit V **Presentation Skills** (for formal design presentations, seminars etc)
Listening Skills
Preparing Written Reports

Reference Books :

1. Wren & Martin
2. Advanced English Grammar by Hewings Martin
3. Essential English Grammar by Murphy
4. Fowler's Modern English Usage by Oxford
5. A Communication Grammar of English by Suartuik & Leech
6. A Practical English Grammar by Thomson and Martinet
7. Communication In A Virtual Organization by Collins Staandra D
8. Business Communication by Bhatia Varinder
9. Essentials of Business Communication by Jain & Saakshi
10. Advanced Communication Skills Laboratory Manu by Sudha Rani
11. Sen Madhucchanda (2010), An Introduction to Critical Thinking, Pearson, Delhi
12. Silvia P. J. (2007), How to Read a Lot, American Psychological Association, Washington DC

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Identify problems that may be holding learners back.	L1
CO2	Identify what their non-verbal messages are communicating to others.	L2
CO3	Understand the role of communication in teaching – learning process.	L3,L4
CO4	Understand the importance of empathetic listening.	L3
CO5	Explore communication beyond language.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	L	H	M	H	H	L	L	H	L	H	L	M
CO2	L2	H	H	L	L	L	M	H	L	M	M	L	H	L
CO3	L3,L4	H	L	H	M	H	H	L	L	H	L	H	L	L
CO4	L3	H	M	H	L	L	M	M	M	H	M	M	M	H
CO5	L4	H	H	L	L	L	M	H	L	M	M	M	H	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4,
CD2	Tutorials/Assignments	CO1, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4
CD4	Project Discussions	CO1, CO2, CO3, CO5
CD5	Self- learning advice using internets	CO1, CO3, CO5

Subject Name : MATHEMATICS
Subject Code : 1JAR2

Course Objectives:

1. The objective of this subject is to expose student to understand the basic concepts of differential and integral calculus, ordinary differential equations, matrix theory, three-dimensional geometry and basic statistics.
2. Know and demonstrate understanding of the concepts from the five branches of mathematics (number, algebra, geometry and trigonometry, statistics and probability, and discrete mathematics).
3. Use appropriate mathematical concepts and skills to solve problems in both familiar and unfamiliar situations including those in real-life contexts.
4. Select and apply general rules correctly to solve problems including those in real-life contexts.

Content

Unit I **Statistics**

Mathematical expression, Moments and M.G.F., Probability-simple problems, Binomial, Poisson and normal distributions-simple applications

Unit II **Differential Equations**

First order and first degree-variables separable, Homogeneous form, reducible to homogeneous form, Linear differential Equation, reducible to Linear form, exact equations, second order ODE with constant coefficients

Unit III **Matrices**

Rank of matrix, solutions of linear simultaneous equation, inverse of matrix by elementary transformations, Eigen values, Eigen vectors, Cayley Hamilton Theorem (without proof).

Unit IV **Linear Programme Problems**

Unit V **Coordinate Geometry of Three Dimensions**

Sphere, Cylinder, Cone, Equation of Sphere, Cone Right Circular Cone.

Reference Books :

1. Discrete Mathematics by Sharma
2. Engineering mathematics by Gaur & Koul
3. Engineering Mathematics by Mangal
4. Engineering Mathematics by Jain & Rawat
5. Probability and statistics by Spiegel
6. Probability and statistics by Jhoanson
7. Probailty and Statics in Engineering by Hines
8. Difrferential Equations by Ross
9. Linear Algebra by Singh

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Apply mathematical calculation in all subjects like structure.	L4
CO2	Write and understand basic mathematical proofs.	L3
CO3	Use mathematical ideas to model real-world problems precisely	L3,L4
CO4	Utilize technology to address mathematical ideas.	L3
CO5	Develop analytical thinking skills	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L4	L	L	H	M	M	L	H	H	H	H	H	M	M
CO2	L3	L	L	L	L	H	M	H	L	L	M	M	M	M
CO3	L3,L4	M	L	H	L	H	H	H	L	H	H	H	M	M
CO4	L3	M	M	L	H	L	M	M	M	H	M	H	M	M
CO5	L4	M	M	M	M	M	M	H	M	M	M	M	H	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO4, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO4, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO4, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO4, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO4, CO4, CO5

Subject Name : CONSTRUCTION MATERIALS-I
Subject Code : 1JAR3

Course Objective:

1. To get aware about the basic building materials and their properties.
2. To understand the application and usage of basic building material.
3. To understand the manufacturing process along with the lac tests and quality test of the building material.

Content

Unit I	In the context of Materials, Study of the nature of Materials, the Manufacturing Process, Structural, Visual and Textural Properties, Identification and Selection, their application in buildings
Unit II	Stone
Unit III	Brick
Unit IV	Timber

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn basic building material and their applications.	L2
CO2	Learn the physical and chemical properties and will be able to examine various laboratory tests.	L2
CO3	Learn the source and their manufacturing process of the building materials.	L3
CO4	Learn the advantages and disadvantages of the materials.	L2,L3
CO5	Develop the skills of the selection of the materials and usage	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	M	M	L	M	L	M	L	M	L	M	M	L
CO2	L2	H	L	M	H	M	L	M	H	M	L	M	M	L
CO3	L3	H	L	L	L	H	L	L	M	H	M	M	L	L
CO4	L2,L3	H	L	L	L	M	H	L	M	M	H	M	M	M
CO5	L4	M	M	M	M	M	L	L	L	M	M	L	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO4, CO5
CD2	Tutorials/Assignments	CO1,CO3,CO4
CD3	Seminars / Presentations	CO1,CO4
CD4	Project Discussions	CO2,CO4, CO5
CD5	Self- learning advice using internets	CO1,CO3,CO4

Subject Name : ARCHITECTURAL STRUCTURES-I
Subject Code : 1JAR4

Course Objective:

1. The objective of this course is to introduce students' various methods of discrimination of structural internal forces of deformations.
2. To apply these methods for analysing the indeterminate structures to evaluate the response of structures.
3. To enable the student, get a feeling of how real-life structures behave.

Content

Unit I **Concept of Force**

Graphical Presentation of Force, Coplanar And Ten Coplanar Forces, Concurrent and Non Concurrent Forces, Composition and Resolution of Coplanar Forces Graphical and Analytical Methods.

Unit II **Built-up Steel Section**

Centre of Gravity and Moments of Inertia, Parallel Axes Theorems, Product of Inertia, Use of Steel Tables.

Unit III **Stress and Strain**

l concept units, tensile, compressive and shear stresses, Moduli of Elasticity and their relationship, Linear and Lateral Strains, Poisson's Ratio, Stress Values for Timber, Cast Iron, Mild Steel and for Steel in Tension Compression, Shear and Bending as per ISI Code.

Unit IV **Types of Loads**

Dead, Live, Wind, Impact and Earthquake, Concentrated, Uniformly Distributed and Varying Loads, Moment of a Force.

Unit V **Couple and its Moment**

Conditions of Statistical Equilibrium of forces, Concept of Beams and Various Support Conditions, Determination of Support Reactions, both Analytically and Graphically.

Sessional work shall include assignments/tests on the above topics.

In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Reference Books :

1. P.C.Punmia, Strength of Materials and Theory of Structures; Vol. I, Lakmi Publications, Delhi 1994.
2. S. Ramamrutham, Strength of Materials – Dhanpatrai & Sons, Delhi, 1990.
3. R.K. Rajput – Strength of Materials, S. Chand & Company Ltd. New Delhi 1996.
4. A.P. Dongre – Structural Engineering for Architecture, Scitech Publications Ltd.
5. Strength of Materials by Khurmi R S
6. Steel Table by Agor R

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn various type of forces, stress, and their concepts	L2
CO2	Understand analysis of indeterminate structures and adopt an appropriate structural analysis technique.	L2
CO3	Determine response of structures by classical, iterative and matrix methods.	L2,L3
CO4	Understand different types of load and its calculation	L2,L3
CO5	Learn the application of beams and columns.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	M	M	L	M	L	M	L	M	L	L	L	M
CO2	L2	H	L	L	L	M	H	L	M	M	H	M	L	L
CO3	L2,L3	H	M	M	L	M	L	M	L	M	L	L	L	M
CO4	L2,L3	M	M	L	M	H	M	M	L	M	H	M	M	M
CO5	L4	H	M	M	L	M	H	M	M	L	M	M	L	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECHURAL DRAWING-I
Subject Code : 1JAR5

Course Objective:

1. To develop thought or ideas into drawing skills.
2. To develop the knowledge of graphic codes symbols and scales.
3. To develop the 2D and 3D representation of any objects.
4. To develop the knowledge about the settings of various solid objects.
5. To learn about the development of surface.

Content

Unit I Graphical Codes, Symbols and Scales

- Architectural letterings
- Types of lines
- Symbolic representations of building materials
- Symbolic Representations of Building parts.
- Plane Scales
- Diagonal Scales

Unit II Principles of Pane Geometric views and Projections

- Isometric views
- Axonometric views
- Oblique views
- Isometric projections
- Axonometric Projections
- Oblique Projections

Unit III Orthographic projections (One and two Dimensions)

- Points
- Lines
- Lamina (Planes)
- (Parallel, Perpendicular and inclined projections of above)

Unit IV Orthographic projections (Three Dimensions)

Various solid — Parallel, Perpendicular and inclined projections.

Unit V Sections, Interpenetrations and Development of Surfaces

- Sections of various solid - Parallel, Perpendicular and inclined.
- Interpenetration of various solid geometrical object

Sessional are to be done in the form of drawings on drawing sheets and proportionate sketches on above topics. Sessional will be evaluated continuously in class.

Reference Books :

1. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.
3. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by American Technical Society, 1966.
4. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
5. Bhatt N.D., Engineering Drawing, India, 2011.
6. Architectural Rending by Rendow Yee.
7. Engineering Drawing by Bhatt (N D) & Others
8. Engineering Drawing, J by Jolhe

9. Engineering Drawing and Design by Madsen (David A.)
10. Engineering Drawing and Graphics by Venugopal (K.)
11. Understanding Construction Drawing Single and mu. by Mark W. Huth
12. Design Drawing by Francis D.K. Ching
13. Building Drawing by MG Shah
14. Architectural Drawing and Light const. by Muller
15. Architectural Drawing by Reendow Yee
16. Drawing a Creative Process by D.K. Ching

Course Outcomes:

At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Develop the thought or ideas into drawing skills.	L2
CO2	Develop the knowledge of graphic codes symbols and scales.	L1,L2
CO3	Develop the 2D and 3D representations of objects and application of the same for building plans.	L2,L3
CO4	Gain the knowledge about the settings of various solid objects.	L2,L3
CO5	Learn and practical application of development of surface in field.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	H	H	L	L	M	M	L	H	M	M	M	L
CO2	L1,L2	H	H	H	M	M	M	M	L	L	L	L	M	L
CO3	L2,L3	H	H	M	H	L	H	M	H	H	H	M	L	M
CO4	L2,L3	H	M	M	M	M	L	L	M	M	M	L	M	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARTS AND GRAPHICS I
Subject Code : 1JAR6

Course Objectives:

1. Development of Graphic Skills, Ability and Comprehension. Establishing Significance of Art.
2. To develop the graphic skills and the importance of art.
3. To develop the various rendering techniques by using human figures and vegetation.
4. To get aware about different colour techniques and their role in graphics.
5. To develop the use and types of colour by using colour wheel.

Content

Unit I To learn the utility of pencil as a powerful tool of graphic communication.

Unit II Rendering Techniques

Unit III Human Figures, Vegetation & their Rendering

Unit IV To Appreciate the role of different colour in Presentation and Rendering Techniques

Unit V Analytical study of colour wheel

Reference Books :

1. Water Colour by Mulick (Milind)
2. Sketch Book by Mulick (Milind)
3. Rendering with Pen +Ink by Gill (Robert W)
4. Colour in Sketching and Rendering by Guptill
5. Monographs by Lalit Kala Academy, New Delhi

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn various rendering technique and their role in graphic	L2
CO2	Gain the knowledge of colour, their tint and shade and their applications	L2
CO3	Learn various types of colours and techniques to enhance the presentation.	L2,L3
CO4	Learn various rendering technique and their role in graphic can be learned.	L2,L3
CO5	Construct conceptual and presentation drawings as a design presentation tool for various purposes	L3,L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	L	L	L	H	H	M	M	M	H	H	H	M	H
CO2	L2	H	H	M	M	M	L	L	H	H	L	M	H	M
CO3	L2,L3	L	L	L	L	M	M	M	M	M	M	M	H	M
CO4	L2,L3	M	M	M	M	L	L	L	L	L	L	M	H	M
CO5	L3,L4	H	L	L	L	L	H	H	H	H	H	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING CONSTRUCTION–I
Subject Code : 1JAR7

Course Objectives:

1. The Construction Studio Work Should Demonstrate the Inter Dependence of The Building Materials and Elements and Their Understanding to Form Complete Building Envelope.
2. To develop the knowledge about the various building elements like bricks, stone, wall, foundation, arches and lintel or their usages and types.
3. To awareness about the basics building material, its use and their construction details.

Content

Unit I **Brick:**

- Types of bricks.
- Bonds in brick masonry for various thicknesses of walls and various situations like ends, junctions, etc.
- Attached and detached pier.
- Jointing and pointing.

Cavity walls.

Unit II **Stone:**

- Stone dressing of different types.
- Stone masonry of different types for various thicknesses of walls.

Jointing and pointing / coping

Unit III **Foundation:**

- Types of simple foundations.
- In Bricks
- In Stones,

Timbering to excavation.

Unit IV **Arches:**

- Type of Arches
- Brick Arches

Stones Arches

Unit V **Lintels:**

- Type of Lintels
- Brick Lintels.
- Stone lintels,
- Cantering materials and methods.

Notes **:**

1. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
2. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Reference Books :

1. S.P Arora and S.P. Bindra, Text book of Building Construction, ganpat Rai publications (P) Ltd New Delhi, 2005.
4. Barry, the construction of buildings Affiliated East West press put Ltd New Delhi 1999.
5. Francisa D.K. Ching Building Construction illustrated John Wiley & Sons 2000.
6. Building Construction by Varghese
7. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
8. Handbook of Building Construction Vol-II by M M Goyal
9. Building construction illustrated by Ching
10. Building Constructions by Rangwala (S.C.)
11. Building Construction by Rangwala
12. Building Constructions Illstrated by Ching (Francis D K)
13. The Text Book of Building Construction by Bindra Arora
14. The Construction of Buildings by Barry R
15. Bulding Construction by Punmia B C
16. Bulding Construction Hand Book by Chudley & Other
17. Building Construction Vol. I-IV by Mckay W.B.
18. Carpentry and Building Construction by Feirer & Hutchings
19. Building Construction by Sushil Kumar
20. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand various building elements and their use.	L1
CO2	Understand construction details of the bricks, stone as per their use in building.	L1,L2
CO3	Understand component of openings like arches and lintels, their types and their construction details can be learned	L2
CO4	Recall the various drawing techniques, building construction techniques and structural systems.	L3
CO5	Interpret and translate the drawings based on the structural and other practical considerations	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	H	L	L	L	L	L	M	L	L
CO2	L1,L2	L	L	L	M	M	M	M	M	M	M	L	M	M
CO3	L2	H	H	M	M	M	M	L	L	L	L	L	M	L
CO4	L3	M	M	M	M	M	M	H	H	H	H	M	L	L
CO5	L4	H	H	L	L	L	L	L	L	L	L	L	L	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : INTRODUCTION TO COMPUTERS–I
Subject Code : 1JAR8

Course Objectives:

1. Develop Awareness of Computer and its Environment.
2. Historical background of computer. Computer terminology and its operating principles,
3. Introduction to hardware and software. Use and types of printers, scanner, plotter, etc. Basic
4. Give students an in-depth understanding of why computers are essential components in business, education and society.

Content

Unit I Computer as a Tool for Architects

Introduction to Computer and its Peripherals

Unit II Hardware Brief (Useful For Architects) Viz. CPU, Keyboard, Mouse, Printer, Plotter, Scanner, Digitizer Etc.

Unit III Introduction to Various Software Relevant to Architects viz. MS Word.

Unit IV Excel, PowerPoint.

Unit V Introduction to Basic Internet Applications.

Reference Books :

1. Computer Fundamentals by Singh
2. Fundamental of Computers by Lamba (C.S.)
3. Fundamentals of Computer by Rajaraman
4. Introduction to Computer by Norton, P.
5. Foundations of Computing by Sinha & Sinha

Course Outcome:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Gain the Knowledge of operating systems: Windows, Unix, Linux etc. Brief description of various hardware and software used in architecture.	L1
CO2	Describe the usage of computers and why computers are essential components in business and society.	L1,L2
CO3	Solve common business problems using appropriate Information Technology applications and systems.	L2,L3
CO4	Identify categories of programs, system software and applications. Organize and work with files and folders.	L2,L3
CO5	Use of various software as professional skills	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	H	L	L	M	M	M	L	L	M
CO2	L1,L2	H	H	M	M	M	M	M	M	M	M	M	L	M
CO3	L2,L3	L	L	L	L	L	L	L	H	H	H	L	L	L
CO4	L2,L3	H	H	H	H	H	H	H	H	H	M	M	M	L
CO5	L4	M	M	L	L	L	L	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : WORKSHOP PRACTICE (PHOTOGRAPHY, CARPENTRY, WELDING & MODEL MAKING)
Subject Code : 1JAR9

Course Objectives:

1. To Develop Photographic Skills, to understand Simple Architectural Forms, Joinery and Construction Details Through Field Exercises and Model Making
2. To acquire the skill in constructing three dimensional forms using different model making materials and equipment in different scale.
3. To develop the knowledge of various types of welding through practical work.

Content

Unit I To Provide Technical know how about Cameras, its Accessories and their Applications Including the Following: Camera-Definition, History, Types and Usage, Aperture, Shutter Speed, Types of Lenses and Accessories

Unit II Film Rolls, Types and Usages. Flash, Types and Usage

Unit III Digital Photography, Technical details of Digital Camera like Pixels, white balance, night shots etc. Editing and formatting Digital Images

Unit IV Composition-Settings with respect to view finder, Weather, Place, Colour, Mood and purpose. Architectural-Exteriors and Interiors with respect to Scale, Composition, Texture, Colour, Skyline, Light and Shade

Unit V Carpentry:Handling different carpentry tools, carpentry processes, carpentry joints and wood working machines

Masonry: Handling the bricks, mixing the mortar, bond work of bricks, stones and masonry tools.

Types of joints in wood and metals

Reference Books :

1. Engineering Workshop by Tiwari
2. Workshop by Raguwanshi
3. Carpentary And Joinery Vol-2, 3rd Edition by Brian Porter & Christopher Tooke
4. Making the Most of Small Spaces by Crafti (Stephen)
5. Workshop Practice for Mechanical by Ashish Dutt Sharma

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Familiarize students with different types of materials and manufacturing techniques for creating art forms/ models.	L1,L2
CO2	Understand different kinds of tools and machinery for production of design models.	L2
CO3	Sensitize the usage of various materials for production of art work.	L2,L3
CO4	Apply different mediums and machine tools for production various types of art work.	L2,L3
CO5	Create art forms with different mediums.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	H	H	H	H	L	L	L	L	L	L	M	L	L
CO2	L2	L	L	L	M	M	M	M	H	H	H	M	L	L
CO3	L2,L3	M	M	M	M	M	M	H	H	H	H	M	L	M
CO4	L2,L3	L	L	L	L	L	L	M	M	M	M	L	L	M
CO5	L4	M	M	M	M	M	H	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BASIC DESIGN AND FIELD TRIP
Subject Code : 1JAR10

Course Objectives:

1. The aim of the subject is to introduce to the students the design fundamentals and design vocabulary and enable them to apply the same in compositions and designs.
2. To introduce the various facets of art and architecture and formal vocabulary of design.
3. To understand the elements and principles of Basic Design as the building blocks of creative design and visual composition.
4. To nurture creativity and sensitise the pupil to various design aspects.

Content

Unit I Points, Lines, Planes, Color theory and compositions. Introduction to modern Arts and various other techniques. Principles of Design, Scale in Architecture.

Unit II Forms, Properties of forms, variations in forms with inter-relationship among planes, colours, tones, textures. Application of them in two and three-dimensional compositions, presented in form of scaled drawings, views, and freehand sketches to develop the skill and understanding of forms, proportions etc. in various media viz. pencil, pens, colors etc.

Unit III Study through models of different materials viz. paper, clay, wax, soap, wires etc. The idea is mass and space handling with understanding the roles of form, colour and texture.

Unit IV Anthropometric study and ergonomics of human figure, dimensions of furniture and relationship with human anthropometrics (like in kitchens, toilets, bedrooms, staircases etc) with freehand drawing of human figures, vehicles, trees, buildings etc. to have a better understanding of proportion.

Unit V Designing of basic building components (like kitchens, bedrooms, toilets etc.)

Note: Sessionals shall be in the form of drawings and models.
One time problems (as class tests) is to be conducted in class other than regular design problems

Reference Books :

1. Francis D.K.Ching - Architecture - Form Space and Order Van Nostrand Reinhold Co., (Canaa), 1979.
2. Website: Art & Architecture by Ar. Sirish Sukhatme
3. Time Saver Standards for Building Types by Dechiara & Others
4. The Elements of Style by Chlloway (Stephen)
5. Time Saver Standards for Urban Design by Donald Watson
6. Design Elements: Form & Space by Dennis M. Puhalla
7. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
8. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
9. The Urban Pattern by Gallion (B)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the qualities and effects of different elements and principles of design along with their composite fusion	L1
CO2	Understand and create the spaces and form through 2D and 3D Composition.	L2,L3
CO3	Understand visualization and implementation of various design concepts.	L2,L3
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3,L4
CO5	Understand and create various 3D models with respect to anthropometry.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L1	H	H	H	H	M	M	M	M	M	M	H	M	M
CO2	L2,L3	M	M	M	M	L	L	L	L	L	L	M	M	H
CO3	L2,L3	H	H	H	H	L	L	L	L	L	M	M	M	H
CO4	L2,L3, L4	M	M	M	M	H	H	H	H	H	L	H	M	H
CO5	L5	L	L	L	L	L	H	H	H	H	M	M	M	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : AANANDAM
Subject Code : 1JAR11

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

A. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

B. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 1JAR12 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - II

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	2JAR1	Ecology & Environment	CORE	30	70	100	2	1	3
2	2JAR2	Construction Materials-II	CORE	30	70	100	2	1	3
3	2JAR3	Architectural Structures-II	CORE	30	70	100	2	1	3
4	2JAR4	Introduction To Architecture	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**8**	**4**	**12**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	2JAR5	Architectural Drawing-II	CORE	150	100	250	1	3	4
6	2JAR6	Architectural Design (Basic Design &FieldTrip)	CORE	60	40	100	1	3	4
7	2JAR7	Arts & Graphics-II	SEC	60	40	100	1	3	4
8	2JAR8	Building Construction-II	CORE	60	40	100	1	3	4
9	2JAR9	Introduction To Computer-II	AECC	60	40	100	1	2	3
10	2JAR10	AANANDAM	AECC	50	50	100	1	1	2
11	2JAR11	Discipline & Extra Curricular Activities.	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**440**	**310**	**750**	**6**	**14**	**21**
		GRAND TOTAL	**560**	**590**	**1150**	**33**	**14**	**18**	**33**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : ECOLOGY & ENVIRONMENT
Subject Code : 2JAR1

Course Objectives:

1. The Understanding and Application of Basic Ecology and Ecological Systems with reference to build environment.
2. To understand our ecosystem.
3. To learn about the causes and prevention of air pollution, water pollution and land pollution.
4. To study basic concepts of green architecture and awareness about nature and built heritage.

Content

Unit I **Ecosystems:**

- Concept of eco-system,
- Fundamental of eco-logy and ecosystem,
- Components of ecosystem,
- Food chain, food web, trophic levels, energy flow, cycling of nutrients,
- Major ecosystem types (forest, grassland, and aquatic eco-system).

Fundamentals of Ecosystem, our Earth's Environment

Unit II **Waste (Solid / Liquid / Gaseous):**

Generated by Human Habitat and Treatment thereof (in Brief)

Air pollution:

- Atmospheric composition
- Classification of air pollutants,
- Source and effect of pollutants —green house effect, global warming, ozone depletion, atmospheric stability and temperature inversion etc.
- Ambient air quality standards.
- Architectural measures for reducing air pollution.

Water Conservation and Harvesting (in Brief):

Water pollution:

- Hydrosphere, Natural water
- Classification of water pollutants, trace elements, contamination of water,
- Sources and effects of water pollution, types of pollutants
- Determination and significance of DO, BOD and COD in waste water.
- Eutrophication, methods and equipment's used in waste water treatment (Preliminary, secondary and tertiary)
- Architectural measures for reducing water pollution.

Land and noise pollution:

- Lithosphere,

- Pollutants (agricultural, industrial, urban waste, hazardous waste)— their origin and effect.
- Collection of solid waste, solid waste management, recycling and reduction of solid waste and their disposal techniques (open dumping, sanitary land filling, thermal, composting).
- Noise pollution — definitions and causes.
- Sources, effects, standards and control measures.

Architectural measures for reducing land and noise pollution.

Unit III **Eco-friendly Architecture:**

- Urban eco-system and rural ecosystems
- Inter-relationship of manmade development with eco-processes.
- Eco-friendly materials,
- Eco-friendly energy systems.

Works of various architects who have worked in the field of eco-friendly architecture.

Unit IV

- Environmental Planning and Design Guidelines
- Basics Concepts of Green Architecture

Geological aspects of Land strata for construction

Unit V

- Global environmental issues such as global Warming, Ozone depletion, green house effect etc.

Awareness about Natural and Built Heritage

Note: Sessional will be in the form of drawings and models along with technical report for the subject dealt with. The evaluation should be done in intermediate reviews. There could be regular site visits to understand the ecosystems and eco-friendly architecture.

Reference Books :

1. Miller T.G. Jr., Environmental Sciences, Wadsworth Publishing Co. (TB)
2. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.
3. Hawkins, Encyclopedia of Indian Natural History, Bombay Natural History Sdociety, Bombay (R).
4. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
5. McKinney, M.L & Schoch, R.M. 1996. Environmental Science System & Solutions, Web enhanced edition. 639p.
6. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R).
7. Encyclopaedia of Ecology and Environment (10 Vols Set) by P.R. Trivedi
8. Concepts of ecology by Kormondy Edward J
9. Environment Studies by Buruchha

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Aware the students about the scientific knowledge and current debates on the environment at three nested scales, including their interlink ages – Global, Regional and Local	L1,L2
CO2	Enable the students to understand cause-and-effect relationships between various human, natural and climatic factors that impinges upon ecological systems and their linkages.	L2
CO3	To study basic concepts of green architecture and awareness about nature and built heritage.	L2,L3
CO4	Learn global & national environmental issues, the scale of impacts, important conventions, laws and policies in the field of biodiversity, and environmental protection	L2,L3
CO5	Understand the application of Basic Ecology and Ecological Systems with reference to build environment.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	H	H	H	H	M	M	M	M	M	M	H	M	H
CO2	L2	L	L	L	M	M	M	H	M	M	M	H	M	H
CO3	L2,L3	M	M	M	M	L	L	L	L	L	L	H	H	M
CO4	L2,L3	H	H	H	H	L	L	L	L	L	M	H	M	M
CO5	L4	M	M	M	M	H	L	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : CONSTRUCTION MATERIAL-II
Subject Code : 2JAR2

Course Objectives:

1. The Understanding and Application of Basic Building Materials.
2. To study the nature of materials and the use in the building.
3. To study the manufacturing process of the building materials.
4. To understand the physical and chemical properties by various tests of the materials.
5. To understand the sources and extraction process of various building materials.

Content

Unit I In the context of material, study of The Nature of Materials, Structural, Visual and Textural Properties, The Manufacturing Process, Identification and Selection, Their Application in Buildings

Mud

Unit II Lime

Unit III Cement

Unit IV Sand

Unit V Stone Grit

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Analyse the nature of material and their practical application in field.	L4
CO2	Study the manufacturing process of the building materials.	L2
CO3	Learn the properties of various building materials.	L2,L3
CO4	Understand the physical and chemical properties by various tests of the materials.	L2,L3
CO5	Evaluate the best material required for construction.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L4	H	H	H	L	L	L	M	M	M	M	L	L	L
CO2	L2	M	M	M	L	L	L	H	H	M	M	H	L	H
CO3	L2,L3	M	M	H	H	H	H	H	H	H	H	L	H	H
CO4	L2,L3	L	L	L	H	H	H	H	H	H	H	L	M	M
CO5	L4	H	H	H	H	H	H	H	H	H	H	L	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL STRUCTURES-II
Subject Code : 2JAR3

Course Objectives:

1. The objective of the subject is to enable students to understand various codes, practices and design structural members.
2. Basics theories and definitions.
3. Understanding of Lifting machines and mechanical advantage.

Content

Unit I	Shear force and bending moment diagram for simply supported beam, cantilever beam, overhang beam (subjected to point load, U.D.L and point load/U.D.L.) Point of contra flexure, Member subjected to couple.
Unit II	Theory of bending (simple and pure) Bending equation, Section modulus (only for Rectangular, hollow rectangular) Shear stress distribution for rectangular beam section Introduction of fletched beam. Equation of flexure and its derivation; section modulus; distribution of normal stress due to bending
Unit III	Composite beams; shear stress distribution in rectangular, circular, T and I sections
Unit IV	Plane frames; components of plane frames; determination of forces in members by method of joints and graphical method
Unit V	Lifting machines; mechanical advantage; velocity ratio and efficiency of machines; law of machine; pulley and pulley blocks

Note: Sessionals work shall include assignments/tests on the above topics.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Reference Books :

1. R.K. Bansal, A Text Book on Strength of Materials – Laxmi Publications, New Delhi, 1994.
2. B.C. Punmia, SMTS-I, Strength of Materials – Laxmi Publications, New Delhi, 1994.
3. M.M. Ratwani & V.N. Vazirani, Analysis of Structures, Vol. 1, Khanna Publishers – Delhi, 1987.
4. Timoshenko, S.P. and D.H. Young, Elements of Strength of Materials, Fifth edition, East West Press, 1993.
5. A.R. Jain and B.K.Jain, Theory and analysis of structures, Vol. 1, Nemchand and Bros, Roorkee, 1987.
6. R.K. Rajput ―Strength of Materials‖, S.Chand & Company Ltd., New Delhi 1996.
7. Strength of Materials by Khurmi R S
8. Steel Table by Agor R

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand different types of loads, moments, stress and calculations	L1,L2
CO2	Understand different types of column and beam design	L2,L3
CO3	Understand different section modules.	L2,L3
CO4	Understand different structure system	L2
CO5	Understand lift machines	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	L	L	M	M	H	H	H	H	M	M	M	M	M
CO2	L2,L3	M	H	H	H	M	M	H	L	L	L	L	M	L
CO3	L2,L3	H	H	H	H	H	H	H	H	H	H	L	M	L
CO4	L2	M	M	M	M	M	M	M	M	M	M	L	L	M
CO5	L2	M	M	M	M	H	H	H	H	H	H	M	L	L

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : INTRODUCTION TO ARCHITECTURE
Subject Code : 2JAR4

Course Objectives:

1. To Orient the Student to Study of Architecture as Profession and Design Discipline.
2. To understand the factors influencing architecture of a place.
3. To produce the Vaastu and its science.

Content

Unit I Role of an Architect in an Architectural Project and in society Through History; Disciplines and Skills to be learnt by an Architect

Unit II Factors Influencing Architecture of a Place, Climate, Materials, Socio Cultural, Technological, Etc.

Unit III Introduction to Old and New Architectural Works;
Understanding to Old and New Architectural Works;

Unit IV Understanding the Terms Such as Vernacular, traditional, Classical, Modern, Post Modern and Neo Modern Renaissance, European, Oriental;

Unit V Vaastu and its science.

Reference Books :

1. India Modern by Ypma (Herbert J M)
2. Indian Architecture by Murthy
3. Modern Architect by Hascher
4. New Classic Style by Ingham (Vicki L), James D Blume
5. Pr. of Modern Architecture by Schulz
6. Vaastu by Craze
7. Vastushastra-Vol.-III by Tarkhedkar (A.R.)
8. The Elements of Style by Chlloway (Stephen)
9. Masterpieces of Modern Architecture by M. Agnoletto
10. Modern Architecture Since 1990 by William I.R. Curtis
11. Design Dialog by Deshpande & Shireesh
12. Green is Red by Anil Laul
13. Vastu Vidya by Pegrum Juliet
14. Introduction to Architecture by D.K. Ching
15. Vastu for a Changing World by A. K. Jain
16. Vastu: How to Create a Harmonious Home through Ancient Indian Design Principles by Ashwinie Kumar Bansal

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn the use of locally available materials in construction.	L1,L2
CO2	Understand their responsibility as an architect towards the society.	L2
CO3	Learn how to apply Vaastu in buildings and the science behind using it.	L2,L3
CO4	Understand the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3
CO5	Relate the architecture not on the sake of over exploiting of natural resources.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	L	L	M	M	H	-	M	H	M	M	L	M	L
CO2	L2	M	L	H	L	M	L	-	L	L	L	M	L	L
CO3	L2,L3	H	H	L	-	-	-	H	M	H	M	M	M	L
CO5	L2,L3	M	M	M	M	H	H	H	H	H	H	M	M	L
CO5	L3	H	H	H	H	H	H	H	H	H	H	M	M	L

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DRAWING-II
Subject Code : 2JAR5

Course Objectives:

1. To Develop Drawing Skills as Tools to Thinking, Visualization, and Representation of Design.
2. Introduction of various terms involved in presenting a 3D model on a 2D paper.
3. To enhance their imagination while covering 2D drawing into 3D model.

Content

Unit I Development of Surface:

Unit II **Perspective Drawings-I:**

Introduction to basic terms, principles, types and techniques of perspective drawings for expression of ideas.

Two-point perspective of simple geometrical objects

One-point perspective of simple geometrical objects

Perspective Drawings –II

Two-point perspective of complex geometrical objects and buildings

One-point perspective of complex geometrical objects and building interiors/ exteriors.

Freehand perspective drawings with various techniques of buildings.

Unit III **Sciagraphy-I**

Introduction to basic principles of Sciagraphy and its application on two dimensional objects in plans and elevations.

Sciagraphy-II

Sciagraphy of three-dimensional objects in plan, elevations and views (isometric, axonometric and perspective).

Sciagraphy of simple building elements

Practical applications:

Development of perspective projections of buildings with Sciagraphy and rendering techniques, multiple point perspectives.

Unit IV Graphical Presentation

Unit V Surface development for massing models

Note: Sessional are to be done in the form of drawings on drawing sheets and proportionate sketches on above topics. Sessional will be evaluated continuously in class.

Reference Books :

1. Francis Ching, Architectural Graphics, Van Nostrand and Reinhold Company, NY 1975/ New York, 1964.
2. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
3. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by American Technical Society, 1966.
4. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964.
5. Bhatt N.D., Engineering Drawing, India, 2011.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Develop the presentation skills.	L1,L2
CO2	Enhance their imagination and creativity by developing of 3D models.	L2
CO3	Enhance their knowledge of anthropometry.	L2,L3
CO4	Compose the architectural spaces in a design project	L3,L5
CO5	To communicate architectural drawings with the help of various mediums	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	H	H	H	L	L	L	L	L	M	M	H	M	H
CO2	L2	M	M	L	L	L	M	M	M	M	H	M	M	M
CO3	L2,L3	H	H	H	H	H	M	M	M	M	M	H	H	M
CO4	L3,L5	M	M	M	M	M	H	H	H	H	H	M	H	M
CO5	L4	H	H	H	H	H	H	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DESIGN (Basic Design & Field Trip)
Subject Code : 2JAR6

Course Objectives:

1. To understand architectural form, space and related qualities, exploration through fenestrations and facade treatment, material and expression
2. To explore influence of climate and site conditions on architectural form.
3. To understand the principals of aesthetics, structures.

Content

Unit I Principles of Aesthetics and introduction to aesthetical terms like form, balance, rhythm, harmony, texture, color, symmetry, contrast, discord, accentuation, monotony etc.

Unit II Introduction of Architectural design with an approach of functional understanding and analysis of problems with studies of space requirement for different furniture (objects), activities and circulation, Relationship between occupied and unoccupied spaces.

Unit III Design of small shelters and study of multi units involving 3 to 4 functional spaces, Natural and manmade objects of functional and aesthetic value. Aspects of area determination in conjunction with relevant building Bye Laws and area relationship.

Unit IV Case studies for measured drawing of small buildings and furniture. Introduction of presentation drawings. Small views (isometric and perspective) of the studied building.

Unit V Study and design of small structures like ceremonial gates, temporary exhibition stalls, kiosks, bus stop, small pavilions etc.

Note: Sessionals shall be in the form of drawings and models.
One time problems (as class tests) is to be conducted in class other than regular design problems

Reference Books :

1. Form, Space & Order by Francis D. K. Ching
2. Time Saver Standards for Building Types by Dechiara & Others
3. The Elements of Style by Chlloway (Stephen)
4. Time Saver Standards for Urban Design by Donald Watson
5. Design Elements: Form & Space by Dennis M. Puhalla
6. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
9. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
10. The Urban Pattern by Gallion (B)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Enhance the ability to integrate aspects such as climate, building material & construction, and principles of visual arts into architectural design.	L1,L2
CO2	Understand the measure drawings of small structure	L2
CO3	Understand the aesthetical terms.	L2,L3
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3
CO5	Create architectural drawing with the raw figures, sketches and concept.	L4,L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	L	L	L	-	-	-	H	H	H	H	H	H	H
CO2	L2	H	H	H	H	H	H	H	H	H	H	L	L	M
CO3	L2,L3	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L2,L3	M	M	L	L	L	M	M	M	M	H	L	L	M
CO5	L4,L5	H	H	H	H	H	M	M	M	M	M	H	H	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARTS AND GRAPHICS-II
Subject Code : 2JAR7

Course Objectives:

1. Development of Graphic Skills, Ability and Comprehension. Establishing Significance of Art.
2. To develop the graphics skills and the significance of art.
3. To study the elements and principles of design.
4. To develop the study of 3D and 3D compositions by using various mediums of colour.
5. Understanding 3D sculpture or compositions through various mediums like clay, wood etc.
6. To study the Indian history of art and major Indian art style.

Content

Unit I Principle of art and design study (Rhythm / Balance / Contrast / Harmony etc.)

Unit II 2D compositions in different mediums (Poster Color / Water Color / Pencil Color)

Unit III 2D to 3D development compositions (Paper / Cardboard / Wire Mash etc.)

Unit IV Exploration in different mediums (Clay / Wood / POP / MDF etc.)

Unit V Introduction to Indian history of art artistic tradition and theories

Major art styles of Indian art with cultural reference, techniques i.e. miniature paintings, fresco paintings etc.

Reference Books :

1. Water Colour by Mulick (Milind)
2. Sketch Book by Mulick (Milind)
3. Rendering with Pen +Ink by Gill (Robert W)
4. Colour in Sketching and Rendering by Guptill
5. Monographs by Lalit Kala Academy, New Delhi

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn the principles and elements of art and design.	L1
CO2	Understand the graphics of 2D and 3D compositions through colours and by different medium like, clay, wood etc.	L2,L3
CO3	Implement the art by studying the history of art of India.	L2
CO4	To construct the drawings of complex compositions	L2,L3,L6
CO5	To formulate the 2 dimensions into 3-dimension drawing using metric projection	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	M	M	M	M	M	M	M	H	L	L
CO2	L2,L3	M	M	L	L	L	L	L	H	H	H	L	L	M
CO3	L2	H	M	M	H	M	L	L	L	L	L	L	M	M
CO4	L2,L3, L6	M	M	M	M	H	H	H	H	H	H	L	M	M
CO5	L4	L	L	L	H	M	M	M	M	M	M	L	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING CONSTRUCTION-II
Subject Code : 2JAR8

Course Objectives:

1. The Construction Studio Work Should Demonstrate the Inter Dependence of the building Materials and Elements and their Understanding to Form Complete Building Envelop.
2. To study the construction details of various building components like door, windows etc.
3. To develop the knowledge of various materials used to design building elements.
4. To study the types of building elements on the basics of materials and their use.
5. To develop the skills of drawing various joinery details of these elements and their parts.

Content

Unit I **Doors:**

a) Timber:

- Ledged braced and battened door
- Panel door
- Glazed door
- Flush door
- Sliding folding doors in wood

b) Metal:

- Pressed steel
- 'Z' section, with and without fanlight. Swing doors

Unit II **Windows:**

a) Timber:

- Side and Top hung
- Pivoted
- Louvers
- Ventilators
- Fixed and openable fanlights.
- Composite window.

b) Metal:

- Pressed steel
- 'Z' section,
- Top and side hung, fixed
- Pivoted
- Louvers

Ventilators

Unit III

a) Timber Floors:

- Single
- Double
- Triple
- Various joints between joists, lengthening of wall plates, etc.
- Herring bone and solid strutting.

b) Timber Canopies, Staircase & Balconies:

Canopies:

- Designing of Porch, Canopies in Timber.
- Designing of Covered ways in Timber.

- Fixing details of lighting fixtures, rain water drainage systems, etc. in canopy.

Balconies and Stairs:

- Balconies in Timber.
- Steel balconies.

Stairs (timber).

Unit IV **Timber Roofs:**

- Lean to type
- Couple
- Close couple
- Collar.

Timber trussed roofs:

- King post
- Queen post

Built up roof truss.

Unit V **Opening accessories:**

- Jamb casing
- Architrave
- Palmate
- Moldings
- Skirting
- Door and window fixtures.

Door cum window in timber and metal.

Notes :

1. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
2. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Reference Books :

1. W.B. McKay, ―Building Construction‖ Vol, 1 and 2, Longmans, UK, 1981.
2. S.C Rangwala ―Building Construction‖ Charotar Publishing House, India, 2000
3. Francis D.K Ching Building Construction illustrated, John Willey & Sons, 2000
4. Barry, Construction of Buildings, Volume 1&2, Blackwell Publishing Ltd., Oxford, 2005
5. Building Construction by Varghese
6. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
7. Handbook of Building Construction Vol-II by M M Goyal
8. Building construction illustrated by Ching
9. Building Constructions by Rangwala (S.C.)
10. Building Construction by Rangwala
11. Building Constructions Illstrated by Ching (Francis D K)
12. The Text Book of Building Construction by Bindra Arora
13. The Construction of Buildings by Barry R
14. Bulding Construction by Punmia B C
15. Bulding Construction Hand Book by Chudley & Other
16. Building Construction Vol. I-IV by Mckay W.B.
17. Carpentry and Building Construction by Feirer & Hutchings
18. Building Construction by Sushil Kumar
19. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the construction details of the openings in the building, roof system and flooring types.	L1,L2
CO2	Understand the member along with fixtures and joinery details.	L2
CO3	Understand the flexibility and selection of materials as per their use.	L2,L3
CO4	Understand different types of materials according to their properties	L2,L3
CO5	Understand the application of building material in various terms	L4,L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1,L2	L	L	L	M	M	M	M	M	M	M	H	H	H
CO2	L2	H	H	H	H	H	H	H	M	M	M	H	H	H
CO3	L2,L3	H	H	H	M	M	M	M	M	M	M	M	H	M
CO4	L2,L3	M	M	M	M	M	M	M	M	H	H	M	M	M
CO5	L4,L5	H	H	H	H	M	M	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : INTRODUCTION TO COMPUTER–II
Subject Code : 2JAR9

Course Objectives:

1. To develop the skills of drafting software and management of data in related software.
2. To develop the 2d drafting skills with drafting software
3. To develop the 3D drafting skills and software.

Content

Unit I Computer as a tool for Architects. Introduction to Various Software Relevant to Architects Viz.Auto CAD

Unit II 3DS Max

Unit III CorelDraw, Adobe Photoshop

Unit IV MS Power point, PageMaker etc.

Unit V Advanced Internet Applications.

Reference Books :

1. Mastering Autocad Civil 3d by Prober
2. Autocad 2009 by Bible
3. Cad Principles by Szalapai
4. Digital Photography an Introduction by Ang (Tom)
5. Learing Photoshop CS3 byBangia
6. Let Us C by Kanetkar Yashavant
7. Photoshop CS3 Bible by Doyle
8. Photoshop CS3 Simple Steps by Kogent

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn the use of software to enhance the presentation skills and visualization through software	L3
CO2	Understand the use of various presentation software like Photoshop, coral draw.	L2,L3
CO3	Prepare the Interior and Exterior 3D view with material specification.	L2,L3,L6
CO4	Learn the application of different 3d software	L2,L3,L4
CO5	Understand the techniques ofpresentation skills	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L3	H	H	H	H	H	M	M	M	M	M	M	L	M
CO2	L2,L3	M	M	M	L	L	L	H	H	L	L	M	M	L
CO3	L2,L3, L6	L	L	L	M	M	M	M	H	H	H	M	M	M
CO4	L2,L3, L4	H	H	H	H	H	M	M	M	M	M	M	M	L
CO5	L3	M	M	M	M	M	M	H	H	H	H	H	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : AANANDAM
Subject Code : 2JAR10

Course Objective :

4. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
5. To inculcate the habit of service in students across the University.
6. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

C. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

D. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 2JAR11 (Non Credit)
Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - III

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	3JAR1	History of Architecture-I	CORE	30	70	100	2	1	3
2	3JAR2	Building Science-I (Climatology)	CORE	30	70	100	2	1	3
3	3JAR3	Construction Materials-III	CORE	30	70	100	1	1	2
4	3JAR4	Architectural Structures-III	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONALS

Sr. No.	Code No.	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	3JAR5	Architectural Design-I	CORE	150	100	250	_	8	8
6	3JAR6	Theory of Design-I	CORE	60	40	100	1	1	2
7	3JAR7	Arts & Graphics-III	SEC	60	40	100	1	2	3
8	3JAR8	Building Construction-III	CORE	60	40	100	1	3	4
9	3JAR9	Structure Lab.-I	SEC	60	40	100	-	2	2
10	3JAR10	Computer Application in Architecture-I	AECC	60	40	100	1	2	3
11	3JAR11	AANANDAM	AECC	50	50	100	1	1	2
12	3JAR12	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**500**	**350**	**850**	**5**	**18**	**24**
		GRAND TOTAL		**620**	**630**	**1250**	**12**	**22**	**35**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : HISTORY OF ARCHITECTURE
Subject Code : 3JAR1

Course Objectives:

1. To Develop understanding of social, material and structural attributes, That shaped and architecture in different periods, also to study how interaction and communication with different cultures influenced and reshaped Architecture of India.
2. Study the chronological evolution and impacts of geographic, climatic, geological, religious, political and socio-cultural backgrounds of Indian ancient and Buddhist architecture – in relationship to materials and techniques of construction.
3. Study of different types of architectural temple style, used in ancient period.

Content

Unit I **Architecture of different times:**

Indus valley and Vedic civilization

Unit II Brief about *Sthaptya Kala* as in ancient Indian texts

Unit III **Buddhist Architecture:** Development at Asian level (China, Japan, SE Asia, Afghanistan etc.) Indian examples and influences.

Unit IV Hindu empires (with emphasis on Northern, Central and Southern style of temples)

Unit V Indo Islamic architecture: basic features, Study of various indo Islamic styles in chronological order In terms of design parameters such as cross cultural theories relating to art and architecture construction methods etc.

Reference Books :

1. History of Architecture by G.K. Hiraskar
2. A Global History of Architecture by Francis D.K. Ching
3. A History of Architecture by Fletcher Baister
4. Buddhist and Hindu Architecture in India by Satish Grover
5. The Oral History of Modern Architecture by Peter
6. Indian Architecture (Buddhist and Hindu) by Percy Brown
7. Modern Architecture in India by Sarbjit Bahga
8. Indian Architecture (Islamic Period) by Percy Brown
9. Architecture in India by Electa Moniteur
10. Islamic Architecture of India by Grover
11. The Architecture of India by Adam Hardy
12. Architecture in India Since 1990 by Rahul Mehrotra
13. The Great Ages of World Architecture by Hiraskar G K
14. World Architecture the Master Work by Pryce (Will)
15. History of Architecture by Abhishek Publications Chandigary

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Identify all the aspects related to the design of historic monuments	L1
CO2	Understand of how different architectural styles evolved within the restraints imposed by prevalent social and cultural environment, availability of materials, climate and geography	L2,L3
CO3	Identify various architectural solutions were arrived at within the above mentioned restrains	L3
CO4	Develop the construction technology in that period	L3
CO5	Understand Architectural ornamentation of that period	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	L	L	L	L	L	L	M	L	M
CO2	L2,L3	M	M	M	M	M	L	L	L	L	L	L	M	M
CO3	L3	H	H	H	H	H	M	M	M	M	M	L	M	M
CO4	L3	M	M	M	L	L	L	H	H	L	L	L	L	M
CO5	L4	L	L	L	M	M	M	M	H	H	H	L	M	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING SCIENCE–I (CLIMATOLOGY)
Subject Code : 3JAR2

Course Objectives:

1. Understanding of inter relation of built environment with material environment Also issues of climatic balance in traditional and contemporary built Environments.
2. To study the fundamentals of climatology and its application in climate responsive building design.
3. To know different types of climate of world and India.
4. To study local material and their construction in different parts of India.

Content

Unit I **Elements of climate:**

- Constituents of climate, definition.
- Measurement and Data collection with use of meteorological data, solar charts etc.
- Classification of climate on global level and national level
- Study of Microclimate and Macroclimate.

Effect of climate on man, shelter and environment

Unit II **Principles of thermal comfort:**

- Physiological impact of climate.
- Comfort indices. Human comfort conditions – Comfort chart, Comfort Zone, Effective temperature, etc.

Natural and artificial methods of achieving thermal comfort — landscaping, building materials (U-values) etc.

Unit III **Parameters of comfort conditions:**

- Ventilation and air movement — spatial organization in buildings, layout and orientation of buildings in housing.
- Natural Illumination and day lighting.

Artificial illumination and night lighting.

Unit IV **Climate conscious design-I**:

- Introduction to traditional design measures / Vernacular architecture in various climates at Global level.
- Architectural design considerations in various climatic zones in India- hot dry, warm humid, cold dry, cold humid, temperate, composite etc.

Effects of climate on building envelope: heat flow, heat transfer

Unit V **Climate conscious design-II:**

- Use of different design aids at various climatic conditions

- Study of materials and construction techniques for climate conscious design.
- Case studies of climate conscious designs.
- Application of wind and solar oriented architecture, introduction to climate oriented software and other analytical techniques.

Passive means of thermal control Solar movement and sun shading devices.

Note: Course would be run through lectures, Audiovisuals and site visits to various laboratories and buildings.
Sessional shall be in the form of reports, seminars, and design solutions on different units. The works of various building science laboratories be referred and discussed.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Reference Books :

1. O.H. Koenigsberger and others (1993), Manual of Tropical Housing and Building – Part I - Climate design, Orient Longman, Madras, India.
2. Climate Responsive Architecture by Arvind / Krishan
3. Climate Responsive Architecture by Arvind Krishan
4. Climatology by D.S. Lal
5. Manual of Tropical Housing & Building by Koenigsberger
6. Modern Tropicl Garden Design by Wijaya (Made)
7. Tropical Architecture by Tzonics
8. Tropical Sustainable Architecture by Joo-Hwa Bay & Boon-Lay Ong
9. Dynamics Daylight Architecture by Helmut Korter
10. Solar Energy Principles and Application by N.D. Kaushik

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the list of different elements of climate.	L1
CO2	Classify the factors of comfort, and to infer the impact of these factors on built structures.	L2,L3
CO3	Examine through mathematical formulae the thermal comforts levels of built form	L3
CO4	Assess the effects of site, sun and wind in building response.	L3
CO5	Design the shelters complimenting the different climates and geographical factors	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	L	L	L	M	M	M	M	H	H	H	L	L	L
CO2	L2,L3	H	H	M	M	M	M	L	L	L	L	M	L	L
CO3	L3	M	M	M	M	M	M	M	H	H	H	M	L	L
CO4	L3	M	M	M	M	M	M	H	H	H	H	M	H	H
CO5	L4	M	M	M	M	M	H	H	H	H	M	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : CONSTRUCTION MATERIAL-III
Subject Code : 3JAR3

Course Objectives:

1. To introduce and familiar student with/to composite and multiple application of materials.
2. Study of physical, chemical, visual and textural properties of materials their Application and use in building and building components as applied in buildings.
3. To study the use and types of various materials along with their physical and chemical tests.
4. To understand the source and manufacturing process of various materials.

Content

Unit I Cement product: **Mortars, concrete and R.C.C.** preparation, application techniques, tests concreting under special conditions, special varieties of concretes.

Unit II Plastics,

Unit III Glass

Unit IV Derivatives of Wood

Unit V Ply's and Boards

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the physical, chemical, visual and textural properties of materials their Application and use in building and building components as applied in buildings.	L1
CO2	Understand the composite and multiple application of materials.	L2
CO3	Understand the use and types of various materials along with their physical and chemical tests.	L3
CO4	Learn the source and manufacturing process of various materials.	L3
CO5	Understand the latest materials and their construction technology.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	L	L	L	M	M	M	M	H	H	H	H	M	M
CO2	L2	H	H	H	M	M	M	M	M	M	M	L	H	M
CO3	L3	-	-	-	L	L	L	L	L	L	L	M	M	H
CO4	L3	L	L	L	L	L	M	M	M	M	M	L	H	M
CO5	L4	M	M	M	M	H	H	H	H	H	H	H	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL STRUCTURES-III
Subject Code : 3JAR4

Course Objectives:

1. The objective of this course is to introduce students' various types of column and foundation.
2. To impart knowledge about Determination of wate, bearing capacity of soil and footings.
3. To make the student familiar with latest computational techniques and software used for structural analysis.

Content

Unit I Calculation of slope and deflections in determinate beams using, Double integration method and Moment area method.

Unit II Long and short columns or struts; slenderness ratio; buckling load; various end conditions and effective lengths; struts with eccentric loading; struts with initial curvature; Assumptions and limitations of EULER theory; Rankine Gordon formula; crippling and crushing load calculations for struts using Euler and Rankine formula.

Unit III Soil and soil mass constituents; Introduction to three phase diagram and two phase diagrams; water content; specific gravity; void ratio; porosity; degree of saturation; air voids and air content; unit weights; density index etc.

Inter -relationships of the above.

Unit IV Determination of water content and specific gravity; particle size distribution; sieve and sedimentation analysis; consistency limits; void ratio and density index; classification of soil for general engineering purposes as per IS -classification.

Unit V Bearing capacity of soils; types of shear failures in soil; shallow foundation; relation for depth of foundation; TERZAGHI's theory, formula and limitations; Meyerhof's formula; plate loading test; standard penetration test.

Reference Books :

1. Strength of Materials by Khurmi R S
2. Steel Table by Agor R

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the knowledge of foundation and column design.	L2
CO2	Understand soil bearing, foundation and footings.	L2
CO3	Gain the knowledge of structural analysis of any building structure.	L3,L4
CO4	Apply the knowledge in design for foundation details	L3
CO5	Evaluate the calculations of test of soil	L1

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	H	H	M	M	M	M	M	M	M	L	L	M
CO2	L2	-	-	-	L	L	L	L	L	L	L	H	L	M
CO3	L3,L4	H	H	H	H	H	H	H	H	H	H	M	L	M
CO4	L3	M	M	M	M	H	H	H	H	H	H	H	L	M
CO5	L1	H	H	H	H	H	H	H	H	H	H	H	L	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DESIGN–I
Subject Code : 3JAR5

Course Objectives:

1. To understand architectural form, space and related qualities, exploration through fenestrations and facade treatment, material and expression
2. To explore influence of climate and site conditions on architectural form.
3. To explore the deign evolution.

Content

Unit

Objective analysis of activities and spaces in a given predomination function; It's representation in graphic form.

Design exercise evolving out of single function such as ticket counters/reception offices, security offices, Kiosks, booths, Information Cells, small residences, farm house etc.

Multiple function such as primary health centres, convenient shopping etc. As least one design problem to concentrate on comprehensive graphic representation to form a prelude to measure drawing.

Reference Books :

1. Residential Style by Boekel (Andrea)
2. Design for Shopping by Sara Manvelli
3. Health care Space vol.4 by Roger Yee
4. Architecture for Healthcare by Andrea Boekel
5. Malls & Department Store by Chris Van Uffelen
6. Time Saver Standards for Building Types by Dechiara & Others
7. The Elements of Style by Chlloway (Stephen)
8. Time Saver Standards for Urban Design by Donald Watson
9. Design Elements: Form & Space by Dennis M. Puhalla
10. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
11. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
12. The Urban Pattern by Gallion (B)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand architectural form, space and related qualities, exploration through fenestrations and facade treatment, material and expression	L4
CO2	Explore influence of climate and site conditions on architectural form.	L6
CO3	Explore the conceptualization, idea generation and design evolution.	L6
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L3
CO5	Create architectural drawing with the raw figures, sketches and concept.	L4,L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L4	H	H	H	H	H	H	H	H	H	H	M	M	H
CO2	L6	H	H	H	H	H	H	H	H	H	H	M	M	H
CO3	L6	H	H	H	H	H	H	H	H	H	H	M	M	H
CO4	L3	M	H	H	H	H	M	M	M	M	M	H	H	H
CO5	L4,L5	M	M	H	H	H	H	M	M	M	M	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : THEORY OF DESIGN–I
Subject Code : 3JAR6

Course Objectives:

1. To study the design philosophies of different architects.
2. To learn how to apply the various design principles in buildings.
3. To study the biographies of famous architects of lth world.
4. To learn different movements in architectures.

Content

Unit I Formulation of design concepts through elements and principles of architectural Design.

Unit II Study of space usage and its implications.

Classification of spaces, Inter dependence of Form, Structure, Function and Space, Relationship of Plan, Section and Elevation.

Unit III Architectural Scale as manifestation of functional requirements.

Appreciating Architecture through important building examples.

Unit IV Awareness about Vastu Principals. Space as architectural raw material.

Unit V Structure and Form Architectural Programming.

Reference Books :

1. The Elements of Style by Chlloway (Stephen)
2. Vaastu by Craze
3. Vastushastra-Vol.-III by Tarkhedkar (A.R.)
4. An Introduction to Architectural Theory by Mallgrave
5. Design Dialog by Deshpande & Shireesh
6. Green is Red by Anil Laul
7. Vastu for a Changing World by A. K. Jain
8. Vastu: How to Create a Harmonious Home through Ancient Indian Design Principles by Ashwinie Kumar Bansal

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the design philosophies of different architects.	L1
CO2	Apply the various design principles in buildings.	L2
CO3	Understand the study the biographies of famous architects of the world.	L1,L2
CO4	Understand the Architectural scale and its application.	L3
CO5	Analyse the relationship of different spaces in a building plans and to relate plans, elevations and sections together.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	L	L	L	L	H	H	M	M	M
CO2	L2	H	H	H	H	M	M	M	M	H	H	H	M	M
CO3	L1,L2	H	H	H	H	L	L	M	M	H	H	H	M	H
CO4	L3	M	M	M	M	H	H	H	H	H	H	H	M	H
CO5	L4	H	H	H	H	H	H	H	H	H	H	H	M	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARTS & GRAPHICS-III
Subject Code : 3JAR7
Course Objectives:

1. To understand the graphic skills, presentation techniques and model making.
2. To understand the murals, sculpture and rendering with model making.
3. Understanding of 3d forms and principals of design.

Content

Unit I Emphasis is to be laid on graphic skill/presentation techniques/model making etc.

Unit II Indoors and outdoors sketching in pencil/ crayons/ colour/ charcoal/ ink of objects/ building/ automobiles/ vegetation/ human figure etc.

Unit III Sculpture/ mural exercises in clay/ POP/ ceramics/ metal/ junk and scrap material etc.

Unit IV Study of 3D forms and spaces with basic principles of design like repetition, symmetry, rotation and rhythm.

Unit V Study of various colour scales.

Reference Books :

1. Ancient Greece Art, Architecture and History by Marina Belozerskaya and Kenneth Lapatin
2. Art + Architecture by Ivan Margolius
3. Art and Architecture of Post-Gupta Period by Himani Khanna
4. Art Deco by Duncan (Alastair)
5. Water Colour by Mulick (Milind)
6. Sketch Book by Mulick (Milind)
7. Rendering with Pen +Ink by Gill (Robert W)
8. Color in Sketching and Rendering by Guptill

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Develop the skills of selection of materials as per requirements.	L2
CO2	Understand the Scale and Proportion through model making.	L4
CO3	To understand the theory of colours and design principals.	L3,L4
CO4	To understand the presentation skills through sketching and model making	L5
CO5	To identify the theory of the spaces with all its supportive elements like colour, geometry etc	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	H	H	H	H	H	H	H	H	H	H	H	H
CO2	L4	H	H	H	H	H	H	H	H	H	H	H	H	M
CO3	L3,L4	H	H	H	H	H	H	H	H	H	H	H	H	M
CO4	L5	M	M	M	M	M	H	H	H	H	H	M	M	M
CO5	L2	H	H	H	H	H	H	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING CONSTRUCTION-III
Subject Code : 3JAR8

Course Objectives:

1. To study the construction details of various type of foundations and staircase, ramps.
2. To study the types and construction details of foundation.
3. To study of staircase and ramp system.

Content

Unit I Emphasis should be laid on understanding of constructions in R.C.C. in different part of building through basic building elements.

Unit II **Foundation I:**

- R.C.C. column footings,
- Foundations for workshops and machines.
- Formwork of foundation with column.

Foundation II:

- Raft foundations,
- Grillage foundations.

Special Foundations, shallow foundations.

Unit III Structure: Simple R.C.C. Frame with beams and columns & Slab.

Unit IV Roof: Flat R.C.C. roof with water proofing details study of different R.C.C. roof forms and its connection with structure.

Unit V **Staircases & Ramps:**

- Types of staircases
- Detail of R.C.C.
- R.C.C. ramps.

Formwork of Staircases & Ramps.

Notes :

1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Reference Books:

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the various types of foundations and there use in the buildings	L1
CO2	To understand the various components of the buildings	L2
CO3	To recognize the use of construction materials with their required proportion	L3,L4
CO4	To analyse the use of load supporting members along with their design	L3
CO5	To create the construction drawings on the acquired knowledge	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	H	H	H	H	H	H	H	H	M
CO2	L2	H	H	H	H	H	H	H	H	H	H	M	H	M
CO3	L3,L4	H	H	H	H	H	H	H	H	H	H	H	H	M
CO4	L3	H	H	H	H	H	H	H	H	H	H	M	M	M
CO5	L4	H	H	H	H	H	H	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : STRUCTURE LAB – I
Subject Code : 3JAR9

Course Objectives:

1. To study the different types of aggregates and their application.
2. To study the building materials like bricks and their physical characteristics.
3. To study of strength test of materials.

Content

Unit I To determine fineness modulus of fine aggregate (Sieve Shaker and Sieve sets)

To determine fineness modulus of coarse aggregate (Pycnometer and Weigh Balance)

Unit II To determine Specific Gravity and Moisture Content of:

MMM.Coarse Aggregate

II. Fine Aggregate

III. Sand

IV. Soil

Unit III To determine water absorption of Brick

To determine compressive strength of brick (Oven and Weighing Balance)

Unit IV To determine Impact value of course Aggregate (Compression Testing Machine)

Unit V To determine the Grain size distribution of soil (Aggregate Impact Value Testing Machine)

Reference Books :

1. Strength of Materials by Khurmi R S
2. Steel Table by Agor R

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the usage of aggregate and advantages or disadvantages.	L1
CO2	Understand the application of building materials and aggregates.	L2
CO3	Understand the soil bearing capacity.	L1,L2
CO4	Analyse the use of soil according to condition	L4
CO5	Understand the use of footing system	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	L	L	L	L	-	-	-	-	H	H	M	M	H
CO2	L2	H	H	L	L	L	L	L	M	M	M	H	M	H
CO3	L1,L2	M	M	H	H	H	H	H	H	M	M	H	M	M
CO4	L4	M	M	M	M	M	M	M	H	H	H	M	M	M
CO5	L4	H	H	H	H	H	H	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : COMPUTER APPLICATION IN ARCHITECTURE-I
Subject Code : 3JAR10

Course Objectives:

1. To apprise the students of the existing Presentation related software like word processors, drawing tools and photo editors etc.
2. To introduce the drafting software and it importance/application in architecture.
3. To study the knowledge of plan, section and elevation through drafting software.
4. To introduce the use and requirement of various peripheral hardware.

Content

Unit I Application of Word processors. Available contents and tools in the latest versions of popular software's like MS Word, Lotus, PageMaker etc. Special emphasis on drawing tools in the software's. Introduction to various presentation linked software's like MS Power point, Corel Draw and Photoshop and their usage.

Unit II Application of AutoCAD. Available contents and tools in the latest versions of the same. Special emphasis on drawing tools in the software's.

Unit III Introduction to various 2D and 3D tools and drawing of plans, elevations, sections through AutoCAD software.

Unit IV Drafting simple geometrical objects & plans in 2 dimensions.

Unit V Usage and understanding of Peripheral Hardware like Printers and Scanner.

Reference Books :

1. Mastering AutoCAD Civil 3d by Prober
2. AutoCAD 2009 by Bible
3. Cad Principles by Szalapai
4. Digital Photography an Introduction by Ang (Tom)
5. Learing Photoshop CS3 byBangia
6. Photoshop CS3 Bible by Doyle

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the use of drafting tools in preparing the presentation drawings	L1
CO2	Recognize the use of peripheral hardware devices	L2
CO3	Apply the knowledge of basics of design with the graphic tools	L3,L4
CO4	Understand and check the basics of design by relating free hand drawings with graphical software	L3
CO5	Understand the use of architectural tools for improvement of professional skills	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	M	M	M	M	M	M	M	H	H	H
CO2	L2	H	M	M	M	M	L	L	M	M	M	L	H	H
CO3	L3,L4	M	M	H	H	H	H	H	H	M	M	L	L	H
CO4	L3	H	H	H	H	H	M	M	M	M	M	M	M	M
CO5	L4	M	M	M	M	H	H	H	H	H	H	M	M	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3
CD3	Seminars / Presentations	CO1,CO2,CO3
CD4	Project Discussions	CO1,CO2,CO3
CD5	Self- learning advice using internets	CO1,CO2,CO3

Subject Name : AANANDAM
Subject Code : 3JAR11

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

E. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

F. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 3JAR12 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - IV

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	4JAR1	History of Architecture-II	CORE	30	70	100	2	1	3
2	4JAR2	Surveying	SEC	30	70	100	1	1	2
3	4JAR3	Construction Materials-IV	CORE	30	70	100	1	1	2
4	4JAR4	Architectural Structures-IV	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**6**	**4**	**10**

SESSIONALS

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	4JAR5	Architectural Design-II (Including Measured Drawing camp)	CORE	150	100	250	_	8	8
6	4JAR6	Theory of Design-II	CORE	60	40	100	1	1	2
7	4JAR7	Arts & Graphics-IV	SEC	60	40	100	1	2	3
8	4JAR8	Building Construction-IV	CORE	60	40	100	1	3	4
9	4JAR9	Computer Application in Architecture-II	AECC	60	40	100	1	2	3
10	4JAR10	Surveying Lab	SEC	60	40	100	_	2	2
11	4JAR11	AANANDAM	AECC	50	50	100	1	1	2
12	4JAR12	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**500**	**350**	**850**	**5**	**18**	**24**
		GRAND TOTAL		**620**	**630**	**1250**	**11**	**22**	**34**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : HISTORY OF ARCHITECTURE-II
Subject Code : 4JAR1

Course Objective:

1. To develop understanding of architecture as society's primary response to simple needs and problems related to shelter and complete problems related to natural and man-made environment both in qualitative and quantitative terms.
2. To understand evolution of Architectural Styles as response to prevalent socio-cultural, technological and intellectual complexities of societies.
3. To understanding the social, economic and architectural values of different style of cultures.

Content

Unit I Study of evolution of design concepts, philosophy construction techniques, materials and structural solutions with the help of selected examples, with reference to social, cultural, geographical political and intellectual climate of the place and period.

Unit II **Western Classical Architecture** —Greek and Roman (with examples from temples, public buildings, palaces etc.)

- Orders
- Visual Corrections
- Construction techniques

Egyptian Architecture

- Mashaba and tombs
- Pyramids
- Temples

West Asiatic Architecture

- Sumerian
- Assyrian
- Babylonian

Unit III Greek, Roman, Romanesque

Unit IV **Christian Architecture (Churches)**

- Early Christian
- Byzantine

Unit V **Romanesque and Gothic (Churches)**

Study of various European styles with construction techniques, aesthetical principles, architectural philosophy.

Note: The discussions should be based on selected examples highlighting the aesthetical values, architectural features, construction techniques, materials used and philosophy of construction.

Reference Books :

1. Sir Banister Fletcher, A History of Architecture, University of London, The Antholone Press, 1996.
2. Percy Brown, Indian Architecture (Buddhist and Hindu Period), Taraporevala and Sons, Bombay, 1983.
3. History of Architecture by G.K. Hiraskar
4. A Global History of Architecture by Francis D.K. Ching
5. The Oral History of Modern Architecture by Peter
7. Modern Architecture in India by Sarbjit Bahga

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the difference between various architectural styles and construction technology.	L1
CO2	Understand Different type of culture like western culture, Indian, Egyptian.	L2
CO3	Understand the Principals and social aspects of their cultures.	L2,L3
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L3
CO5	Understand the evolution of structures in terms of form and design in the medieval time in west Asiatic region and eastern European continuum.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

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CO1	L1	H	H	H	L	L	L	L	M	M	M	M	M	M
CO2	L2	L	L	L	L	L	L	M	M	M	M	H	M	M
CO3	L2,L3	L	L	M	M	M	M	H	H	H	H	M	M	M
CO4	L3	M	M	L	M	M	M	M	M	L	L	H	M	M
CO5	L3	M	M	M	H	H	H	H	H	H	H	H	L	L

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : SURVEYING
Subject Code : 4JAR2

Course Objectives:

1. Principal and rule of Surveying
2. Different Surveying Methods and related instruments
3. Use of field book for different type of survey
4. Use of different survey instruments

Content

Unit I **Introduction of surveying:**

- Aspects of surveying for the Architect.
- Formulae used in measurement of land with geometrical and abstract configurations to work out Areas, volumes and other quantities.

Introduction

Principles and classification of survey, Basic measurements in surveying, Basic methods of surveying, Different types of transverse.

Chain Survey

Introduction, Instruments, Types of chains and tapes, their uses and construction details.

Compass Survey

Introduction, Different type of compass, Meridians, Bearings, Dip, Declination, Local attraction, Adjustment of angles, Loose needle and fast needle method. Compass transverse.

Unit II **Chain survey:**

- Instrument used.
- Selection of survey station.
- Chain line, Offset, oblique offset, tie line, check lines, ranging.

Field book plotting.

Unit III **Leveling and Contouring**

Basic definitions, Types of leveling, sources of errors, Computations & Permanent adjustment of levels, Contouring and Earth work calculations.

Leveling:

- Various parts of dumpy level.
- Temporary adjustment.
- Interrelationship of bubble tube axis.
- Line of collimation and vertical axis.
- Leveling staff, technical term used in leveling.
- Fly leveling (study of reciprocal leveling).
- Introduction of contouring.

Theodolite Survey

Introduction, Basic definitions, Construction details, Temporary adjustment, Measurement of vertical and horizontal angle, Area computations by

planimeter.

Unit IV **Plain table surveying:**

- Introduction.
- Equipment required.
- Working with plain table.
- Errors in plain table.
- Advantage and disadvantage.

Plane Table Surveying

Elements of plane table survey, Plane table transverse.

Total Station

Introduction and basics of using total station for field survey

Unit V **Construction surveying:**

- Introduction.
- Equipment for setting out.
- Horizontal and vertical control.
- Setting out a pipe line.
- Setting out a building and structure (complete layout).
- Staking out a highway.

Setting out works for Buildings

Introduction, Controls for setting out, horizontal control, Vertical control, setting out in vertical direction, Positioning of a structure, Setting out of foundation trenches.

Note: Class work and fieldwork of the above subject should be oriented towards the layout of buildings and preparation of measured drawings. Students should also be taken to site visits for explaining the practical aspects of surveying.
Sessional work should include reports, drawings, and experiments etc. in assignment seminar form.
In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Reference Books :

1. B.C.Punmia – Surveying Vol.I – Standard Book House, New Delhi – 1983.
2. P.B. Shahani – Text of surveying Vol.I, Oxford and IBH Publishing Co – 1980
3. Fundamentals of Surveying by Roy
4. Surveying by K.R. Arora
5. Surveying and Leveling by Bhavikatti (S.S.)
6. Surveying vo. 1-5 by Punmia
7. The Hand Book of Lighting Surreys & Audits by Fetters (John L.)
8. The Home Owner's Survival Manual by Arch

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Interact technically with surveyors	L3
CO2	Prepare and interpret survey drawings	L2
CO3	Gain a broad understanding of Land Survey	L3,L4
CO4	Get accustoms with the angular and linear measurements	L3
CO5	Understand different type of surveys	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L3	H	H	H	-	-	-	-	M	M	M	H	H	H
CO2	L2	L	L	L	L	L	L	-	-	-	-	L	H	L
CO3	L3,L4	-	-	M	M	M	M	H	H	H	H	H	H	L
CO4	L3	L	L	L	L	L	-	M	M	M	M	H	L	L
CO5	L4	M	L	L	L	L	L	L	M	M	M	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : CONSTRUCTION MATERIALS-IV
Subject Code : 4JAR3

Course Objective:

1. To introduce the details about the metals and alloys.
2. To study the physical and chemical properties of metals and alloys
3. To develop the knowledge of structural and non-structural application of eta and alloys.

Content

Unit

Study of physical, chemical visual and textural properties of metals and alloys and their application in building and Metal and alloys like steel, iron, brass, aluminium and copper are to be studied as structural and non-structural applications.
Protective finishes on metal.
Study of Metal applications in hard wares.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn various properties of metals in their use in a building.	L1
CO2	Understand the use of metals and alloys in various building components like door, window.	L2
CO3	Learn various protective measures and techniques to preserve metals	L3
CO4	Understand the advantages and disadvantages of the materials.	L2,L3
CO5	Understand the skills of the selection of the materials and usage	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	M	M	M	L	L	L	L	H	H	H	H	H	L
CO2	L2	H	H	H	-	-	-	H	L	L	L	L	H	L
CO3	L3	H	L	L	L	M	M	M	M	M	M	M	H	H
CO4	L2,L3	M	M	M	M	M	M	L	L	L	L	M	H	H
CO5	L4	M	M	M	M	M	M	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL STRUCTURES-IV
Subject Code : 4JAR4

Course Objectives:

1. SI Codes and practices
2. Design simple RCC structural members
3. Manufacturing process of different materials.

Content

Unit I Constituent of concrete and functions of each constituent; storage of aggregates; properties of coarse and fine aggregates; flakiness and elongation index and its determination; fineness modulus impurities; introduction to admixtures (accelerators and retarders).

Unit II Cement; raw materials for cement; manufacturing of cement; types of cements and their properties; IS tests on cement; field tests for cement; bouge's compounds and their influences on properties of cement.

Unit III Concrete mixing; batching of concrete; introduction to mix design methods; workability and determination of workability of fresh concrete; factors affecting workability; effect of w/c ratio on strength; segregation and bleeding of concrete; properties of fresh and hardened concrete; tests on hardened concrete.

Unit IV Requirements of good structures, safety, stability, economy; design concept of factor of safety and limit state; failure modes of a structure; permissible stresses and deflections;

Unit V Types of loads and combinations of loads; necessity of reinforcement; characteristics of reinforcing material; introduction to mild steel and high tensile steel; factors of safety; live loads on various types of floors and roofs; introduction to IS 875 part 2 , IS 456:2000 and IS 800:2007.

Reference Books : 1. Steel Table by Agor R

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the RCC as structural material	L1,L2
CO2	Understand the behaviours of RCC structural members	L1
CO3	Create designs of simple structural members.	L3,L4
CO4	Understand the RCC construction system	L3
CO5	Understand the load calculation	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	M	H	H	H	H	L	L	H	H	H	M	M	M
CO2	L1	H	M	M	M	L	-	H	L	L	L	H	H	H
CO3	L3,L4	H	L	L	L	L	M	M	-	M	M	M	H	M
CO4	L3	M	M	M	M	H	M	M	M	H	H	M	H	M
CO5	L4	L	L	L	L	H	L	L	L	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DESIGN-II (Including Measured Drawing Camp)
Subject Code : 4JAR5

Course Objectives:

1. To understand architectural form, space and related qualities, exploration through fenestrations and facade treatment, material and expression
2. To explore influence of climate and site conditions on architectural form.
3. To explore the different types of façade, deign.

Content

Unit `

- Introduction to basic design methodologies including emphasis on case studies, time activities studies, anthropometrics and their presentation as a prelude to design solution. Due emphasis is to be given on concurrent subjects like Climatology, construction techniques etc. Incorporation of building materials in design solution to be emphasized.
- Exercise may include building with multiple uses such as clubs, clinics, motel, secondary schools and community centre.
- Measure drawing camp to include study of building/group of building/settlements of architectural important, involving detailed drawings, constructional details, material used to give due importance to the given context.

Reference Books :

1. Club Design by Daab
2. Educational Space Vol.3 by Noal
3. Educational Facilities by Arian Mostaedi
4. Kindergartens Schools and Playgrounds by Ana G. Canizares
5. Restaurant, Clubs and Bars by Fred Lawson
6. A Design Manual Schools and Kindergartents by Mark Dudek
7. Time Saver Standards for Building Types by Dechiara & Others
8. The Elements of Style by Chlloway (Stephen)
9. Time Saver Standards for Urban Design by Donald Watson
10. Design Elements: Form & Space by Dennis M. Puhalla
11. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
12. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
13. The Urban Pattern by Gallion (B)

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand architectural form, space and related qualities, exploration through fenestrations and facade treatment, material and expression	L1
CO2	Explore influence of climate and site conditions on architectural form.	L1,L2
CO3	Explore the different types of façade deign.	L3
CO4	Understand the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L3
CO5	Create architectural drawing with the raw figures, sketches and concept.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

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CO1	L1	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L1,L2	H	H	H	H	H	H	H	H	H	H	H	M	H
CO3	L3	H	H	H	H	H	H	H	H	H	H	L	H	H
CO4	L3	H	H	H	H	H	H	H	H	H	H	H	L	L
CO5	L5	H	H	H	H	H	H	H	H	H	H	M	L	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : THEORY OF DESIGN-II
Subject Code : 4JAR6

Course Objectives:

1. To study the design philosophies of different architects.
2. To learn how to apply the various design principles in buildings.
3. To study the biographies of famous architects of lth world.
4. To learn different movements in architecture

Content

Unit I Study of time, life, works and philosophies of Louis Suillvan, Frank Lloyd Wright, Walter Gropius, and Mies Vander – Rohe, Le Corbusier.

Introductory note on the Chicago school and ultimately more stress should be given on development of concepts of their individual works as entity in itself.

Unit II **Louis Sullivan**

Guaranty Building, Wainwright building, Auditorium building etc.

Walter Gropius

Bauhaus, Fagus Shoe Last Factory etc.

Unit III **Meis Van Der–Rohe**

Farnsworth House, Lake shore Apartment, Seagram Building etd.

Frank Lloyd Wright

Parie Houses, Organic Architecture etc.

Unit IV **Le Corbusier**

Early and later works as well as specific study of Chandigarh.

Unit V **Introduction to following terms**

Brutalism, Purism, Expressionism, Modernism,Post Modernism, Neo-modernism, Deconstructivism etc.

Reference Books :

1. The Elements of Style by Chlloway (Stephen)
2. An Introduction to Architectural Theory by Mallgrave
3. Design Dialog by Deshpande & Shireesh
4. Green is Red by Anil Laul
5. Le Corbusier vol.1,1910-1929 by W.Boesiger & O.Stonorov
6. Le Corbusier vol.2,1929-1934 by W.Boesiger
7. Le Corbusier vol.3,1934-1938 by M. Bill
8. Le Corbusier vol.4,1938-1946 by W.Boesiger
9. Le Corbusier vol.5,1946-1952 by W.Boesiger
10. Le Corbusier vol.6,1952-1957 by W.Boesiger
11. Le Corbusier vol.7,1957-1965 by W.Boesiger
12. Le Corbusier vol.8,1965-1969 byW.Boesiger

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the relation between various materials, spaces and design principles.	L1
CO2	Create development of design from them. Learnt about movements in architecture and	L2
CO3	Learn about Louis Sullivan work and their philosophy.	L2
CO4	Learn about Meis Van Der–Rohework and their philosophy.	L2
CO5	Learn about Le Corbusierwork and their philosophy.	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1	L	L	L	H	H	H	H	H	H	H	M	M	M
CO2	L2	M	M	M	H	L	L	L	H	H	H	M	M	M
CO3	L2	H	H	H	H	H	H	H	H	H	H	M	M	M
CO4	L2	L	L	H	H	H	L	L	H	H	H	H	H	H
CO5	L2	M	M	H	L	L	M	M	H	L	L	H	H	H

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4. CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4. CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4. CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4. CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4. CO5

Subject Name : ART & GRAPHICS-IV
Subject Code : 4JAR7

Course Objectives:

1. To understand the graphic skills, presentation techniques and model making.
2. To understand the murals, sculpture and rendering with model making.
3. To understand the uses of material for model making.

Content

Unit I	**Emphasis** is to be laid on various presentation techniques and renderings of drawings.
Unit II	**Perspectives** of buildings and interior views.
Unit III	**Rendering** in different mediums like pencil, ink, watercolours etc.
Unit IV	**Study** of light and shade with reference to objects, buildings etc.
Unit V	**Making** collages, murals, sculptures at a bigger scale leading to a art project, using different materials like metals, clay, Plaster of Paris, wood, paper, ceramics, glass etc.

Reference Books :

1. Water Colour by Mulick (Milind)
2. Sketch Book by Mulick (Milind)
3. Rendering with Pen +Ink by Gill (Robert W)
4. Color in Sketching and Rendering by Guptill
5. Art Deco Architecture
6. Art The Difinitve Visual Guide by Dixon (Andrew Graman)
7. Graphic Design A Concise History by Hollis (Richard)
8. Monographs by Lalit Kala Academy, New Delhi

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the importance of models in designing	L1
CO2	Develop the techniques to enhance the presentation drawings	L1,L2
CO3	Analyse the various aspects (light and shadows) through model making	L3
CO4	Enhance the thinking process by understanding the presentation techniques	L3
CO5	Create the ideas of exterior and interior spaces by gaining this course knowledge	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L1,L2	M	H	H	H	H	H	L	H	H	H	M	M	M
CO3	L3	H	H	H	H	H	H	H	H	H	H	M	M	M
CO4	L3	H	H	H	H	H	H	H	H	H	H	H	H	M
CO5	L2	H	M	M	M	M	M	H	H	H	H	H	H	H

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING CONSTRUCTION-IV
Subject Code : 4JAR8

Course Objective:

1. To study the construction details of various type of foundations and trusses.
2. To study the types and construction details of roof system.
3. To study of different types of material for building construction.

Content

Unit I **Emphasis** is to be laid on understanding of construction in steel in different parts of buildings.

Unit II **Foundation :** Grillage foundation,

Unit III Structure; Steel columns and beams structure, Structural floor

Unit IV **Steel** trusses structures with riveted and welded joints; Tubular Truss

Unit V **Roofing**

Roof covering in G.I., Asbestos and Fiber sheets etc.

Notes :

1. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
2. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn.

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the flexibility of material(steel) in different parts of a building	L2
CO2	Understand the joinery details of different materials with steel used in various parts of steel structures	L6
CO3	Apply the knowledge of load and construct the components (roof, foundation, beam, columns) of the steel structure	L3,L4
CO4	Understand the use of roofing materials and their joinery with steel structures	L3
CO5	Create the construction drawings as per requirement by acquired the knowledge of the steel structures and their details	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L2	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L6	H	H	H	H	H	H	H	H	H	H	M	M	M
CO3	L3,L4	H	M	M	M	M	M	L	L	L	L	M	M	H
CO4	L3	H	H	H	H	H	H	M	M	M	M	H	M	H
CO5	L5	M	M	M	M	L	L	--	M	M		H	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : COMPUTER APPLICATION IN ARCHITECTURE-II
Subject Code : 4JAR9

Course Outcomes:

1. To develop the skills of drafting software and management of data in related software.
2. To develop the 3d drafting skills with drafting software
3. T develop the calculation skills through various software like MS EXCEL.

Content

Unit

3D drafting in any popular architectural software e.g. ACAD (latest version).

Management of data in a data processing software e.g. MS Excel, Tools related to bar charts, Pie charts and Tables to be introduced.

Simple calculation functions like addition, average and sorting to be learnt.

Reference Books :

1. Mastering Autocad Civil 3d by Prober
2. Autocad 2009 by Bible
3. Cad Principles by Szalapai
4. Foundations of Computing by Sinha & Sinha

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Remember the 3Dimensional spaces by using the computer software	L1
CO2	Understand the joinery details of different materials with steel used in various parts of steel structures	L2
CO3	Understand the supportive features like (pie charts, graphs, tables) and there use in preparing data	L3,L4
CO4	Understand the basic calculations with software	L3
CO5	Demonstrate an understanding of three-dimensional conceptual ideas and their application in architectural drawings	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1	M	M	M	L	L	L	H	H	H	H	H	H	M
CO2	L2	H	H	H	H	H	H	M	L	L	L	M	H	H
CO3	L3,L4	M	M	M	L	L	L	H	H	H	H	M	H	H
CO4	L3	H	H	H	H	H	H	H	H	H	H	M	H	H
CO5	L4	H	M	M	M	M	M	L	L	L	L	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : SURVEYING LAB
Subject Code : 4JAR10

Course Objectives:

1. Principal and rule of Surveying
2. Different Surveying Methods and related instruments
3. Use of field book for different type of survey
4. Use of different survey instruments

Content

S.No.	Experiments	Instruments
1.	To measure horizontal distances and marking of offsets.	Chain and Tape
2.	To measure Fore Bearings and Back Bearings for open & close traverse.	Compass and Chain or Tape
3.	To find out differences in elevations of two stations.	Dumpy level, Staff
4.	To determine horizontal angle by Repetition and Reiteration Method.	Theodolite & Ranging rods
5.	To determine vertical angle for elevations of tower & Building.	Theodolite & Staff.
6.	To locate two distinct points on sheet.	Plane Table, Alidade, Trough Compass

Reference Books :

1. B.C.Punmia – Surveying Vol.I – Standard Book House, New Delhi – 1983.
2. P.B. Shahani – Text of surveying Vol.I, Oxford and IBH Publishing Co – 1980
3. Fundamentals of Surveying by Roy
4. Surveying by K.R. Arora
5. Surveying and Leveling by Bhavikatti (S.S.)
6. Surveying vo. 1-5 by Punmia
7. The Hand Book of Lighting Surreys & Audits by Fetters (John L.)
8. The Home Owner’s Survival Manual by Arch

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the primary surveying techniques adopted in past years.	L2
CO2	Understand different Surveying Methods and related instruments.	L6
CO3	Learn and understand the use of field book for different type of survey.	L3,L4
CO4	Understand the role of elevations and determination of levels at various surface patterns, and perform its practical application in the field.	L3
CO5	Understand the concept of contouring.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	M	M	M	L	L	L	H	H	H	H	H	M	L
CO2	L6	H	H	H	H	H	H	H	H	H	H	H	M	M
CO3	L3,L4	H	M	M	M	M	M	L	L	L	L	H	M	M
CO4	L3	M	M	M	L	L	L	H	H	H	H	H	M	M
CO5	L4	H	H	H	H	H	H	H	H	H	H	H	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : AANANDAM
Subject Code : 4JAR11

Course Objective :

7. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
8. To inculcate the habit of service in students across the University.
9. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

G. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

H. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 4JAR12 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - V

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	5JAR1	History of Architecture-III	CORE	30	70	100	2	1	3
2	5JAR2	Building Services-I (Water supply & sanitation)	CORE	30	70	100	2	1	3
3	5JAR3	Construction Materials-V	CORE	30	70	100	1	1	2
4	5JAR4	Architectural Structures-V	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	5JAR5	Architectural Design-III & Field Trip	CORE	150	100	250	_	8	8
6	5JAR6	Quantity Surveying & specification	CORE	60	40	100	2	1	3
7	5JAR7	Sociology	CORE	60	40	100	1	1	2
8	5JAR8	Building Construction-V	CORE	60	40	100	1	3	4
9	5JAR9	Computer Application in Architecture-III	AECC	60	40	100	_	2	2
10	5JAR10	Elective-I 5JAR10.1 Interior Design 5JAR10.2 History of Rajasthan Art	GE DSE	60	40	100	1	1	2
11	5JAR11	Landscape and Site Planning	CORE	60	40	100	1	2	3
12	5JAR12	AANANDAM	AECC	50	50	100	1	1	2
13	5JAR13	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**560**	**390**	**950**	**7**	**18**	**26**
		GRAND TOTAL		**680**	**670**	**1350**	**14**	**22**	**37**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : HISTORY OF ARCHITECTURE-III
Subject Code : 5JAR1

Course Objectives:

1. To study the styles, form and method of construction of the Renaissance period, Modern Architecture
2. This course is in continuation of the previous course of History of Architecture and aims to understand the evolution of architecture and its transformation in the contemporary times, both at the international end level well as at the national level.
3. To study of Different type of architecture style of world.

Content

Unit I Modern Architecture and its development during industrial revolution and its influence thereby the great international exhibitions, various movements, thoughts and philosophies pertinent

Early Islamic Architecture

- Development of ancient Islamic Architecture (global)
- Development of Islamic Architecture (Indian) pre-Mughal rule (Delhi Sultanate)

Unit II **Indian Islamic Provincial Architecture —**

- Central India
- East India
- West India
- South India

Unit III British – Colonial Architecture, Indo – Gothic Architecture, Indo – Renaissance Architecture and the design and Architecture of New Delhi by sir Edwin Lutyens.

Renaissance Architecture:

- Italian
- French
- English
- German

Unit IV **Indian Islamic Architecture during Mughal Rule**

- Pre Akbar period
- Akbar –Jahangir period
- Reign of Shajahan
- Aurangzeb and after

Unit V **Colonial Architecture**

- Introduction
- Regional influence
- Indo-saracenic style
- Influence of early industrialization

Reference Books :

1. Sir Banister Fletcher, A History of Architecture, University of London, The Antholone Press, 1986.
2. Spiro Kostof – A History of Architecture – Setting and Rituals, Oxford University Press, London, 1985.
3. Pier Luigi Nervi, General Editor – History of World Architecture – Series, Harry N.Abrams, Inc.Pub., New York, 1972.
4. S.Lloyd and H.W.Muller, History of World Architecture – Series, Faber and Faber Ltd., London, 1986.
5. Vincent Scully: Architecture; Architecture – The Natural and the Man Made: Harper Collins Pub: 1991.
6. Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994
7. History of Architecture by G.K. Hiraskar
8. A Global History of Architecture by Francis D.K. Ching
9. A History of Architecture by Fletcher Baister
10. The Oral History of Modern Architecture by Peter
11. Modern Architecture in India by Sarbjit Bahga
12. Architecture in India by Electa Moniteur
13. The Architecture of India by Adam Hardy
14. Architecture in India Since 1990 by Rahul Mehrotra
15. The Great Ages of World Architecture by Hiraskar G K
16. World Architecture the Master Work by Pryce (Will)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Develop critical analysis of the contributing factors and an overview of the issues facing the contemporary world. A sound knowledge base of the processes and events that shaped the architecture of the present	L3
CO2	Understand of different type of civilization and their architecture style	L2
CO3	Understand of architectural elements and principles.	L2
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3,L4
CO5	Understand the term Renaissance and the evolution of structures during this era.	L3 ,L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L3	M	M	M	L	L	L	H	H	H	H	H	M	M
CO2	L2	H	H	H	H	H	H	H	H	H	H	H	H	M
CO3	L2	H	M	M	M	M	M	L	L	L	L	M	H	M
CO4	L2,L3, L4	M	M	-	M	M	H	H	H	H	H	H	H	M
CO5	L3 ,L4	M	M	M	M	M	M	M	M	M	M	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING SERVICES–I (Water Supply & Sanitation)
Subject Code : 5JAR2

Course Objectives:

1. To provide inputs on basic building services like water supply, sanitation, storm water, refuse & fire through conceptual understanding of system, process, methods, network, materials, & resources.
2. To provide knowledge regarding working of systems with sustainable options in vogue.
3. To provide knowledge of sewer system of city and house level.

Content

Unit I **Water Supply-I**

- Sources of water, types of water.
- Water treatment for domestic purpose.
- Quality of potable water.
- Rain water harvesting system.
- Recycling of water.
- Principles of design of drainage lines, drainage layouts for building premises, longitudinal sections of drains.

Soilage, toilet waste and storm was collection and disposal system. Requirements for various building types for solid waste management systems, disposal of toxic and hazardous wastes, General principles of drainage, manholes, grease chambers, etc.

Unit II **Water Supply-II**

- Study of water storage and supply network.
- Calculation of water supply requirements based on Indian standards (BIS and NBC).
- Architectural approach to plan the domestic water storage facilities and water distribution system in a building and settlement, along with study of fixtures, fittings, accessories, equipments and construction details thereof.
- Requirements of water supply to different types of building. Sources of water, modes and methods of conveyance of water, fixtures and appliances.
- Distribution of water, method of distribution, different distribution systems and their principles of layout.

Design water distribution system in a campus, and in a building, overhead and underground water storage tanks.

Unit III **Sanitation-I**

- Basic principles of sanitation
- Introduction to modern plumbing system.
- Study of Indian standards and plumbing byelaws (NBC).
- General introduction to various sanitary fitting & fixtures, their

placement, functions and constructional details.

Study of internal & external drainage system including study of duct for various buildings including small residences, apartments, block of houses, public buildings etc.

Unit IV **Sanitation-II**

- Study of various types of sanitary pipes, construction of joints and laying of pipes.
- Study of Traps, Inspection chambers, Manholes, Septic tanks, Soak pits, and Public sewage line.
- Study of Disposal systems for domestic effluent from fitting to sewer line.

Study of storm water disposal at site and settlement level.

Unit V **Sanitation-III**

- Importance of sanitary services in the economics of buildings.
- Study of refuse chutes and service floors in multistoried buildings.
- Planning & design for disposal of urban /rural effluent.
- Various methods of collection, treatment, disposal, and recycle of urban /rural effluent including wastewater and city solid wastes.
- Traps, ventilation of drains are sewers.

Drainage in non-municipal areas – soak wells, septic tanks, water closets, flushing valves, flushing tanks, basins and its accessories, rain water, drainage pipes, spouts, sizing of rain water pipes, disposal system of rain water ground level, storm water drainage. Introduction to Indian Bureau of Standards.

Reference Books :

1. Manual of water supply & treatment, 2nd edition, CPHEEO, Ministry of works and housing, New Delhi 1977
2. AFE Wise, JA Swaffied Water, Sanitary & Waste Services in buildings – Mitchell Publishing Co. Ltd. – 2002, V Ed.
3. G.M. Fair, J.C.Geyer & D.Okin, Water and Waste water engineering Vol II, John Wiley & Sons, Inc. N Y, 1968
4. Manual on sewerage and sewerage treatment, CPHEEO – Ministry of works and housing, New Delhi, 1980
5. S.C. Rangwala, Water supply and sanitary engineering, Chartar publishing house, Anand, 1989, Lecture notes compiled by Chaman.L.Gupta
6. Renewable energy, basics and technology, supplement volume on integrated energy systems) Solar Agni systems, Sri Aurobindo Ashram, Pondicherry 605002 India
7. Water Supply and Sanitation by Charanjit Shan
8. Water Supply and Sanitary Engineering by S.C. Rangwala
9. Plumbing Design and Practice by S G Deolalikar
10. Water Supply and Sanitary Installations by A.C. Panchdhari
11. Water Supply and Sanitary Engineering by Gurcharan Singh
12. Water Supply by Birdde
13. Water Supply Engineering by Punamia

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the process & systems with installation of equipment's related to the services identified	L3
CO2	Learn Sanitary system of buildings.	L2,L3
CO3	Learn Planning and design for disposal of urban/rural effluent.	L2,L3
CO4	Learn drainage system and installation of pipes	L2,L3
CO5	learn building envelop in terms of services	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L3	H	H	H	M	M	M	-	-	-	-	M	M	M
CO2	L2,L3	L	L	L	L	-	-	-	M	M	M	M	M	M
CO3	L2,L3	H	M	M	M	M	M	L	L	L	L	M	M	M
CO4	L2,L3	M	M	M	M	M	H	H	H	H	H	M	M	M
CO5	L3	H	H	H	H	H	H	M	M	M	M	M	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : CONSTRUCTION MATERIALS-V
Subject Code : 5JAR3

Course Objectives:

1. To understand the methods of protecting a building from dampness.
2. To understand the techniques of thermal and sound insulation via building materials and techniques.
3. To understand various methods to make a building fire & safe.

Content

Unit I Decorative finishes, wooden flooring, wooden staircase, wooden panelling, glazed floor wall finishes, ceramic tile finishes.

Unit II Materials Damp Proof.

Unit III Thermal Insulation.

Unit IV Sound Insulation.

Unit V Fire-Proof Finish.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the application of waterproofing methods for different parts of the building.	L2
CO2	Understand the climate responsive buildings and the various materials and techniques used for thermal insulation.	L2
CO3	Understand the meaning of sound insulation and its application with or without materials at different places.	L2,L3,
CO4	Understand various methods to make a building fire & safe	L2,L3,L4
CO5	Learn different types of interior finishes.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L2	L	L	L	L	M	M	M	H	H	H	M	M	M
CO2	L2	L	L	L	L	-	-	-	M	M	M	L	M	M
CO3	L2,L3,	H	-	-	L	L	L	M	L	L	L	L	M	M
CO4	L2,L3, L4	M	M	M	L	L	L	L	M	M	M	L	M	M
CO5	L3	M	M	M	M	L	L	L	M	M	M	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL STRUCTURES-V
Subject Code : 5JAR4

Course Objectives:

1. The objective of the subject is to enable students to understand RCC codes and practices and design RCC structural members.
2. Develop knowledge of Beams and columns.
3. Develop knowledge of footing and foundations.

Content

Unit I Method of RCC design i.e. LIMIT STATE METHOD OF DESIGN

Limit state of flexure; analysis and design for singly and doubly reinforced RCC beams.

Unit II Analysis and design for flanged beams and L – beams; design for shear and bond; anchorage and development length; design of stirrups for beams (vertical stirrups only).

Unit III Introduction to slabs i.e. one – way and two – way slabs; various load distribution patterns for slabs; design of one – way slab.

Various corner conditions for slabs; design of two – slabs.

Unit IV Introduction to RCC columns; long and short columns; slenderness ratio criteria; eccentricity criteria; design and analysis of axially loaded short RCC columns (rectangular, square and circular in section).

Unit V Types of footings; various types of failures of footings; design of isolated footing.

Introduction to retaining walls and RCC walls; design moments and design shear force calculations for retaining walls and RCC walls.

Reference Books :

1. Design of Bridge Structures by Jagadeesh
2. Design of concrete Structures by Bandopadha
3. Simplified Design of Concrete Structure by Mabrose (Parker)
4. Steel Table by Agor R

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Design RCC structural members likes beams, slabs etc.	L4
CO2	Design RCC combined and eccentric footings.	L4
CO3	Design RCC structures.	L5
CO4	Understand RC.C. structure	L2,L3
CO5	Understand the strength of R.C.C. members	L2,L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L4	H	H	H	H	M	M	M	M	M	M	H	H	H
CO2	L4	M	M	M	M	L	L	L	L	L	H	H	H	H
CO3	L5	H	H	M	M	L	L	H	H	M	M	M	M	M
CO4	L2,L3	M	M	M	M	L	M	M	M	M	M	M	M	M
CO5	L2,L3	H	H	H	H	H	H	H	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DESIGN–III & FIELD TRIP
Subject Code : 5JAR5

Course Objectives:

1. Climate in design development process.
2. Site contours as a design opportunity.
3. Local materials and construction techniques.

Content

Unit Design of an institution or public building at the community scale or infill scale; Understanding essential character of an institution or public building; Influence of culture, land, climate, technology and finance on the building design; Part detail of the project to understand design resolution.

Reference Books :

1. The Best in Science, office and Business Park Design by Phillips (Alan)
2. The Urban School by Architecture
3. Malls & Department Store by Chris Van Uffelen
4. Office Design by Milan
5. Educational Space Vol.3 by Noal
6. Time Saver Standards for Building Types by Dechiara & Others
7. The Elements of Style by Chlloway (Stephen)
8. Time Saver Standards for Urban Design by Donald Watson
9. Design Elements: Form & Space by Dennis M. Puhalla
10. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
11. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Design climate, site and topography responsive buildings.	L2,L3
CO2	Design according to the context of vernacular architecture	L2,L3,L4
CO3	Design process and solution for simple public buildings.	L2,L3,L6
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3,L4
CO5	Understand the local building bylaws and follow up in the design.	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L2,L3	H	H	H	H	M	M	M	M	M	M	H	H	H
CO2	L2,L3, L4	H	H	H	H	H	H	H	H	H	H	H	H	H
CO3	L2,L3, L6	H	H	M	M	L	L	H	H	M	M	H	H	M
CO4	L2,L3, L4	M	M	M	M	M	H	H	H	H	H	M	M	M
CO5	L2	H	H	H	H	H	M	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : QUANTITY SURVEYING & SPECIFICATION
Subject Code : 5JAR6

Course Objectives:

1. To develop a real-time judgment of the quality and quantity of materials, quantity and classes of skilled and unskilled laborers and tools and plants required for the project
2. To develop skill for precise and approximate estimations.
3. To be able to estimate and specify quantities of various items of material and work involved in an architectural project.

Content

Unit I **Specifications-I:**

- Importance and methods of drafting specification in buildings
- Use of Indian standard specification and PWD/ CPWD handbook, specifications affecting cost.
- Method of specification writing (trade wise practice, item of completed works)
- Standard clauses/ instructions for various items of work for the contractor, owner, Architect, sub- contractor.

Explanation of extra items, their necessity and other items created for change of specifications.

Unit II **Specifications-II:**

- Specification for a structure from excavation up to finishing in superstructure.
- Material specification (timber and its products, metals, water proofing materials, materials used in roofing and roof covering, etc.)

Exercise on specification writing of load bearing structure, R. C. C. frame structure and steel frame structure.

Unit III **Introduction to Estimation:**

- Types of estimates.
- Methods of preparing estimates.
- Data required for making an estimate.
- Introduction to Quantity Survey.
- Taking off quantities for principal building works, electrical works.
- Introduction to procedure of estimating, data required for framing an estimate, type of estimates.

Approximate and detailed estimate, Abstract of Estimates, Bills of quantities, Contingencies.

Unit IV **Methods of estimation and rate analysis:**

- Mensuration, Standard Mode of measurements, Schedule of rates, Commercial abbreviations, Methods and procedure of taking off abstractions, Working up and Billing, Examples and exercises for above from excavations to finishing.
- Rate analysis, Cost of materials and labour for various works,

Measurement of work for interim and final certificates for payment to contractors.

Analysis of Rate for Principal civil works, item rate considering current market rate for building materials and labor wages as well as P.W.D. scheduled of rates.

Unit V Composition of rate – percentage – distribution for materials, labor, tools plant and contractor's Profit.

Reference Books :

1. Estimating, Costing and Valuation (Professional practice) By Rangwala – S.C Charotar Publishing House, India.
2. Estimating & Costing – By B.W. Dutta (Revised by S. Dutta) UBS Publishers Distribution P.Ltd. India.
3. Estimating Costing & Valuation by Rangwala
4. Estimating for civil engineers by Varshney D V
5. Estimating and Costing in Civil Engineering by B.N. Dutta
6. A Course in Electrical Installation Estimating & Costing by J. B. Gupta
7. Estimating Costing and Valuation by Gurcharan Singh & Jagdish Singh
8. Estimating & Costing & Valuation by Rangwala
9. A text book of Estimating and costing by Brirdie GS
10. Estimating & Costing & Valuation by Vazirani
11. Basic of civil engineering by Chander
12. Hand book of Civil engineering by Vaziram & Chandola
13. Estimating Costing and Building Economics for Architects by Prof. Harbhajan Singh

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand concept and types of estimation and rate analysis with its importance in architectural projects	L2
CO2	Execute and implement the appropriate methods for preparing the estimates and valuation reports	L2,L3
CO3	Prepare the bills of the construction projects by learning the methods of estimation	L2,L3,L5
CO4	Understand the use of Indian standard specification and PWD/ CPWD handbook in estimation of architectural projects	L2,L3,L4
CO5	Evaluate and compare the cost of the projects at every stage and analysing the documents	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L2	H	H	H	M	M	M	M	M	M	L	H	M	M
CO2	L2,L3	H	H	H	H	H	H	H	H	H	H	H	M	M
CO3	L2,L3, L5	H	H	M	M	M	M	M	M	M	M	H	M	M
CO4	L2,L3, L4	M	-	M	M	L	M	M	M	M	M	H	M	M
CO5	L5	H	M	M	M	H	M	M	M	L	L	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : SOCIOLOGY
Subject Code : 5JAR7

Course Objectives:

1. Basic of rural and urban society
2. Understanding society and its issues
3. Understanding of urbanization and modernization.

Content

Unit I	Man, environment and society.
Unit II	Distinguishing features of Rural and Urban society.
Unit III	The concept of social stratification urbanization and modernization.
Unit IV	Concept of social structure, cultural and social institutions, relation between social structure and spatial structure, social aspects of housing for different economic classes with focus on urban poor, Urban Slums and problems of slums.
Unit V	Community participation in development of public assets like schools.

Reference Books :

1. Sociology by C.N. Shankar Rao
2. Sociology Basic Concepts by H.K. Rawat
3. Indian Social System by Ram Ahuja
4. Ideology & Theory in Indian Sociology by Yogendra Singh
5. Sociology by Anthony Giddens
6. Social Science an introduction to the study of society by Elgin F. Hunt & David C. Colander
7. Urban Sociology by N. Jayapalan
8. Urban Sociology: Images & Structure by William G. Flanagan
9. Urbanization in India Sociological Contributions by Ranvinder Singh Sandhu

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Grasp the fundamental economics of the Indian society	L1,L2
CO2	Understand and apply economic principles in building construction projects.	L2,L3
CO3	Understand Features of rural and urban society.	L2,L3
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3,L4
CO5	Resolve concerns at community level which is directly or indirectly related to architecture.	L3,L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1,L2	M	M	M	M	M	M	M	M	M	M	H	H	H
CO2	L2,L3	H	H	-	-	-	-	H	H	M	M	H	H	H
CO3	L2,L3	L	L	L	M	-	-	M	M	M	M	M	M	M
CO4	L2,L3, L4	M	M	M	M	M	M	H	H	H	H	M	M	M
CO5	L3,L4	H	H	H	M	M	M	M	M	L	L	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING CONSTRUCTION-V
Subject Code : 5JAR8

Course Objectives:

1. To study construction of different protective finishes in building design.
2. To develop the skills of various floors, walls and roof finishes.
3. To study the construction details of various finishes along with the material and their applications.

Content

Unit I **Wall Finishes:**

- Cavity Wall Construction
- Wood Paneling
- Stone Paneling

Unit II **Floor Finishes:**

- Terrace Water Proofing
- Basement Damp Proof Construction
- Industrial Steel Floor

Unit III False Ceiling Partitions

Unit IV **Special flooring and roofing:**

- Industrial steel floor.
- Fire proof roofing / flooring.
- Stone slab roofing.
- Stone floor on girder support.

Unit V **Flooring**

- R.C.C. Flooring,
- Mosaic Flooring & Cement Tile Flooring,
- Interlocking Paving Blocks in ground and upper floors,
- Industrial Flooring.

Notes:

1. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
2. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the various types of finishing techniques and their use in different parts of building	L3
CO2	Evaluate the best suitable flooring materials and their types	L2,L3
CO3	Understand the areas of the buildings where preventive measures are required from water and fire their processes with construction details	L2,L3,L6
CO4	Develop the knowledge of the materials, there use and their joineries as per requirement	L2,L3,L4
CO5	Modify the techniques more efficiently as per requirement	L3,L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L3	M	M	M	M	M	H	H	H	H	H	M	M	M
CO2	L2,L3	M	M	M	M	M	L	L	H	H	H	L	M	M
CO3	L2,L3, L6	L	L	L	M	-	-	M	M	M	M	M	M	M
CO4	L2,L3, L4	M	M	M	M	M	M	M	M	M	M	L	L	L
CO5	L3,L4	H	H	H	H	H	M	M	M	M	M	L	L	L

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : COMPUTER APPLICATION IN ARCHITECTURE-III
Subject Code : 5JAR9

Course Objectives:

1. Photoshop skills to create technically correct and presentable three-dimensional building models.
2. Skills to render and animate building models.
3. Understanding of lighting system in architecture.

Content

Unit I	Making Interior
Unit II	Exterior views of buildings in 3D Max. Model
Unit III	Rendering
Unit IV	Application of Light, Background, Camera, etc.
Unit V	Walkthroughs & Flyovers.

Reference Books : 1. Foundations of Computing by Sinha & Sinha

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Recognize the use of CAD tools and its techniques for architectural designing	L2
CO2	Prepare the exterior and interior views of building	L2,L3
CO3	Relate the parameters of handmade drawings with the CAD tools	L2,L3
CO4	Demonstrate an understanding of application of light backgrounds	L2,L3,L4
CO5	Prepare and improve the conceptual ideas and presentation renderings as a design presentation tool for various purposes	L3,L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L2	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L2,L3	H	H	H	H	H	H	H	H	H	H	M	M	M
CO3	L2,L3	H	H	H	H	H	H	H	H	H	H	M	M	H
CO4	L2,L3, L4	H	H	H	H	H	H	H	H	H	H	H	L	L
CO5	L3,L4	H	H	H	H	H	H	H	H	H	H	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE-I - INTERIOR DESIGN
Subject Code : 5JAR10.1

Course Objectives:

1. To develop sensitivity to related dimension of architecture like arts and crafts, traditional ornamentation.
2. To look interior spaces are soul of a building that makes building functional and pleasant.
3. To study impact of different colour schemes and materials on humans.
4. Basics of interior design such as interior spaces, its types and various components,
5. treatments, finishes, etc.
6. Indoor lighting, furniture design materials selection for different environments.

Content

Unit I **Introduction**

- Understanding the role of interior design in total design process.
- Procedure of Interior design.
- Impact of the interior space on human psychology and behavior.
- Historical background of interior design on global level.

Unit II **Elements and components of interior design**

- Study of considerations for interior design such as Space, planes, Form, Color, texture.
- Abstract and formal configuration, geometrical disciplines, visual controls, illusions with their separate and combined impact.
- Generating character in interiors through use of materials, colors, styles etc.
- Principles of space planning through Orientation, Privacy, Grouping, Flexibility, Circulation, Furniture arrangements, etc.

Unit III **Materials in interior:**

- Surfaces, viz. walls, floor , ceilings etc.
- Furniture, lose and built-in.
- Upholstery, drapery.
- Rugs ,carpets and other floor coverings.
- Water bodies, planters and plantation.
- Decorative features like paintings, sculptures.

Unit IV **Services in interior design:**

- Impact of elements used for thermal comfort,
- Electrical wiring system and fixtures
- Acoustical treatment in interiors and their role in design,
- Illumination, light sources and fixtures,
- Building services etc and design measures to handle them.

Unit V **Design scheme:**

Complete design scheme of interiors for spaces having different uses and requirements such as Reception halls, Waiting lounges, Restaurants, foyers, Drawing halls, Offices, Residential spaces, Exhibition halls, Hotels, Theatres, Assembly Halls etc.

Note: Sessional shall be prepared in the form of notes and sketches, schematic and scale drawings etc. on above topics.

Reference Books :

1. Francis D.K.Ching, Interior Design Illustrated, V.N.R. Pub. NY 1987
2. Ahmed & Kasur
3. The Codes Guide Book for Interiors Harmon by (Sharon Koomen)
4. Time Saver Standards for Interior Design and Space Planning by Dechiara & Others
5. Color in Interior Design by John Plie
6. Interior Design by Ahmed A Kasu
7. Interior Design Illustrated by D.K. Ching
8. Human Dimension & Interior Space by Julius Panero
9. Time Saver Standards for Urban Design by Donald Watson

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Create different design schemes for different spaces	L3
CO2	Understand the impact of different elements such as furniture and decorative features and upholstery.	L2,L3
CO3	Generate character of different spaces according to the function.	L2,L3,L6
CO4	Understand the intricacies of interior space planning and its historical background.	L2,L3,L4
CO5	Understand the modern trends in the field.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L3	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L2,L3	H	H	M	M	M	L	L	-	-	-	M	M	M
CO3	L2,L3, L6	H	H	H	H	H	H	H	H	H	H	L	L	L
CO4	L2,L3, L4	M	M	M	M	L	L	H	L	M	M	L	L	L
CO5	L3	H	H	H	H	H	H	H	H	H	H	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO4,CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE-I - HISTORY OF RAJASTHAN ART
Subject Code : 5JAR10.2

Course Objectives:

1. To develop understanding of Rajasthani Art their techniques and their styles in
2. different periods and now these are used in Architecture.
3. Study development from prehistoric to modern period.
4. Study different types of planning styles of this rich culture.

Content

Unit I Introduction

Unit II Brief History – Prehistoric to modern period

Unit III **Regional division**

- Mewar – Udaipur, Nathdwara, Devgarh
- Marwar – Kishangarh, Jodhpur, Bikaner
- Haroti – Kota, Bundi

Dhundhar – Jaipur, Alwar, Shekhawati, Udaipur

Unit IV Fresco Painting – Techniques, Styles

Unit V

- Miniature Painting – Techniques, Styles

Phad Painting – Techniques, Artist

Reference Books :

1. A History of Rajasthan - Rima Hooja
2. The Blue God by P. Banerjee
3. The Exile in the Forest by Vishwa Chander Ohri
4. Indian Paintings in British Library by J.P. Losty
5. Indian Paintings by B. N. Goswamy and Usha Bhatia
6. Painted Visions by B. N. Goswamy and Usha Bhatia
7. The Kingdom that was Kotah by M.K. Brijram Singh
8. Sensibility Objectified The Sculptrres of Sarbari Roy Choudhury Text by R. Siva Kumar

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Develop understanding of Rajasthani Art their techniques in architecture.	L1
CO2	Enable to identify different periods in art and culture and how these are used in Architecture.	L1,L2
CO3	Learn the analytical study of development from prehistoric to modern period.	L1,L2,L3
CO4	Study different types of planning styles of this rich culture.	L2,L3
CO5	Study regional painting styles.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
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Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L1	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L1,L2	H	H	M	M	M	L	L	-	-	-	M	L	L
CO3	L1,L2, L3	H	H	H	H	H	H	H	H	H	H	L	L	L
CO4	L2,L3	M	M	M	L	L	L	H	H	M	M	M	L	L
CO5	L3	M	M	M	H	H	M	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : LANDSCAPE AND SITE PLANNING
Subject Code : 5JAR11

Course Objectives:

1. Understanding the works and philosophy of Contemporary Architecture.
2. Introduction of landscape element and their relation with the built environment.
3. Role of landscape in sustainable development and environment.
4. Study of landscape with historical perspective.

Content

Unit I Introduction to landscape architecture. Elements of landscape design and their relation to built environment.

- Definition of landscape its scope and importance in architecture
- Planning levels of landscape planning (micro to macro level).
- Role of Landscape Architecture in Sustainable Development
- Landscape design process, information needed for landscape survey.
- Land, water & plants as landscape elements, their functional & aesthetical considerations in landscape design.

Man made elements in landscape design-lamp posts, sign boards, garbage bins, fences etc.

Unit II Plant characteristics – The structure, color, form and foliage of various trees and shrubs and climbers and ground covers. Study and identification of Indian Plants and trees etc. Plant propagation.

- Plantation – Understanding plant material as a design tool.

Design characteristics of plants, selection of plant materials for roof gardens, atriums, avenues, road side plantation, court yards, parking areas, near water bodies, indoor areas, etc. gardening notes including study of soil, fertilizers etc.

Unit III Study of landscape in Historical perspective – Indian, Persian, Chinese, Indian 1850 etc.

Principles and design philosophy of history of landscape architecture

- Mughal
- Japanese gardens
- Renaissance
- 18th century – Brownian
- 19th century – Botanical gardens.
- Dutch Landscape
- English Landscape.

Contemporary Landscape Architecture.

Unit IV Landscape designing – site analysis and development. Designing and presentation of landscape schemes for building projects, gardens/parks, historical monuments, places of tourist interest and Public Art etc.

Unit V Contemporary attitudes to landscape design. Design of road layouts. Parking and campus planning.

Reference Books :

1. Landscape in History by Philip Pregill & Nancy Volkman
2. Ultimate Landscape Design
3. ILLustrated History of Landscape Design by Boults & Sullivan
4. Landscape Construction by David Sauter
5. Construction Landscape: Materials Techniques by Astrid Zimmermann\
6. Bamboo: A Material Landscape & Garden Designs by Jan Oprins
7. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
8. Design Landscape for People by Cumberlidge (Clare)
9. Landscape Architecture Construction by Landphair (Harlow)
10. Landscape Architecture Graphi Stan. by Hopper (Leonard J.)
11. Landscape Architecture Graphic Stanpres by Hopper
12. Landscape Construction by Sauter
13. Landscape Construction and Detailing by Blance
14. Modern Landscape by Spens (Michael)
15. Site Planning by Kevin Lynch & Gary Hack
16. Landscape Graphics by Reid Fasla
17. Site Planning and Design for the Elderly by Diane Y. Carstens
18. Urban Landscape by Agata Losanto
19. Site Planning and Design for the Elderly by Diane Y.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the works and philosophy of Contemporary Architecture in landscaping.	L3
CO2	Understand the landscape elements and their relation with the built environment.	L2,L3
CO3	To learn the role of landscape in sustainable development and maintaining a balanced ecosystem.	L2,L3
CO4	Study of landscape with historical perspective.	L2,L3,L4
CO5	To learn about native trees and plants, their nature , benefits and their practical application.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
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CO2	L2,L3	H	H	M	H	H	M	M	M	L	L	H	M	M
CO3	L2,L3	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L2,L3, L4	M	L	L	L	H	H	M	M	M	M	H	H	H
CO5	L3	M	H	H	M	M	M	L	L	L	M	H	H	H

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
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CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : AANANDAM
Subject Code : 5JAR12

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

I. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

J. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 5JAR13 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - VI

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	6JAR1	History of Architecture-IV	CORE	30	70	100	2	1	3
2	6JAR2	Building services-II (Electrical Services)	CORE	30	70	100	2	1	3
3	6JAR3	Construction Materials-VI	CORE	30	70	100	1	1	2
4	6JAR4	Architectural Structures-VI	CORE	30	70	100	2	1	3
		SUB TOTAL		**120**	**280**	**400**	**7**	**4**	**11**

SESSIONALS

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
5	6JAR5	Architectural Design-IV & Field Trip	CORE	150	100	250	_	8	8
6	6JAR6	Working Drawings	CORE	60	40	100	_	3	3
7	6JAR7	Building Economics	CORE	60	40	100	1	1	2
8	6JAR8	Building Construction-VI	DSE	60	40	100	1	3	4
9	6JAR9	Elective-II 6JAR9.1 Construction Management 6JAR9.2 Sustainable Architecture 6JAR9.3 Low Cost Construction And Techniques 6JAR9.4 Design for Disabled	DSE GE DSE DSE	60	40	100	1	1	2
10	6JAR10	Computer Applications in Architecture-IV	GE	60	40	100	_	2	2
11	6JAR11	Educational Tour	SEC	-	100	100	_	_	3
12	6JAR12	AANANDAM	AECC	50	50	100	1	1	2
13	6JAR13	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**500**	**450**	**950**	**4**	**18**	**26**
		GRAND TOTAL		**620**	**730**	**1350**	**11**	**22**	**37**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : History of Architecture-IV
Subject Code : 6JAR1

Course Objectives:

1. Understanding the works and philosophy of Contemporary Architecture.
2. Study of modern, postmodern and post- independence architecture.
3. Study of various famous building of these periods.

Content

Unit I **Modern Architecture**

Walter Gropius, Mies Van Der Rohe, Le Corbusier.

Unit II **Post-Modern Architecture**

Michael Graves, Frank Gehry, James Sterling, Peter Eisenman, Ricardo Bofill.

Unit III **Deconstruction Architecture**

Bernard Tschumi, Zaha Hadid, Daniel Libeskind.

Unit IV **Post-independence Architecture in India**

Le-Corbusier, Louis Khan, Achyut Kanvinde, B.V. Doshi, Stien, Charles Correa, Uttam Jain, Raj Rewal, A.D. Raje

Reference Books :

1. History of Architecture by G.K. Hiraskar
2. A Global History of Architecture by Francis D.K. Ching
3. A History of Architecture by Fletcher Baister
5. The Oral History of Modern Architecture by Peter
7. Modern Architecture in India by Sarbjit Bahga
9. Architecture in India by Electa Moniteur
11. The Architecture of India by Adam Hardy
12. Architecture in India Since 1990 by Rahul Mehrotra
13. The Great Ages of World Architecture by Hiraskar G K
14. World Architecture the Master Work by Pryce (Will)
15. History of Architecture by Abhishek Publications Chandigary
16. The Elements of Style by Chlloway (Stephen)
17. Masterpieces of Modern Architecture by M. Agnoletto
18. Modern Architecture Since 1990 by William I.R. Curtis
19. Harnessing the Intangible Collected Essays on the Work of Balkrishna Doshi by Neelkanth Chhaya
20. Le Corbusier vol.1,1910-1929 by W.Boesiger & O.Stonorov
21. Le Corbusier vol.2,1929-1934 by W.Boesiger
22. Le Corbusier vol.3,1934-1938 by M. Bill
23. Le Corbusier vol.4,1938-1946 by W.Boesiger
24. Le Corbusier vol.5,1946-1952 by W.Boesiger
25. Le Corbusier vol.6,1952-1957 by W.Boesiger
26. Le Corbusier vol.7,1957-1965 by W.Boesiger
27. Le Corbusier vol.8,1965-1969 byW.Boesiger

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand the difference between history through time period.	L1
CO2	Gain the Knowledge about different architectural elements of different time period's construction style and construction techniques.	L2,L3
CO3	Gain the Knowledge of different design pattern and philosophy of architect in these periods.	L2,L3
CO4	Learn architectural style of different eras	L2,L3,L4
CO5	Learn different design philosophies	L2,L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L1	H	H	H	M	M	M	L	L	L	L	M	M	M
CO2	L2,L3	L	L	L	M	M	M	M	M	M	M	M	M	M
CO3	L2,L3	M	M	M	M	M	H	H	H	H	L	M	M	H
CO4	L2,L3, L4	M	-	M	M	M	M	M	M	M	M	H	H	H
CO5	L2,L3	L	L	-	L	L	L	L	L	L	-	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING SERVICES–II (ELECTRICAL SERVICES)
Subject Code : 6JAR2

Course Objectives:

1. Basic laws and terminologies related to electrical services in buildings.
2. Electrical requirements for given situation, its calculations and design.
3. Artificial Illumination and its application in buildings.
4. Space and facility requirement for provision of electrical supply from State electricity mains to the building / layout with emphasis on load calculation (thumb rules) wiring systems, distribution panels etc within small and medium size buildings and layouts.
5. To facilitate the understanding of Architectural Lighting Design based on the fundamentals of lighting and its components.

Content

Unit I **Basic Electrical Services:**

- Fundamentals of electricity.
- Principles of wiring.

Study of various fixtures, fittings, accessories and equipments used in installation of electrical services in small, large and multistoried buildings of various types viz. residential, commercial, public, industrial etc.

Unit II **Planning and design of electrical services in various types of buildings:**

- Calculation of electric load and its phasing.
- Schematic diagram of electric installations with use of symbols.
- Study of special fixtures like lightning conductors, earthing, waterproof and spark proof installations, stabilizers, circuit breakers etc. and installation thereof.
- Study and application of relevant rules and regulations of Electricity boards.
- Switches and controls.

Unit III Earthing and lightening protection in building.

Unit IV Layout system for lighting, fans, telephones, etc.

Electrical distribution systems in buildings – mains and sub distribution.

Unit V Electrical load calculation

Note: The sessional shall be in form of notes, home assignments, schematic layout/drawing for layout of installation of various electrical services in given building.

Reference Books :

1. E.P.Ambrose, Electric Heating, John Weley & Sons Inc., New York, 1968
2. Philips Lighting in Architectural Design, McGraw Hill. New York, 1964
3. R.G. Hopkenson& J.D.Kay, The lighting of Buildings, Faber & Faber, London, 1969 Conveying systems
4. Elevators, Escalators, Moving Walkways – Manufactures catalogues
5. Handbook of building Engineers in metric systems, New Delhi 1968

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Interact technically with electrical and illumination experts	L3
CO2	Design efficient electrical layouts with their circuit diagrams	L2,L5
CO3	Design efficient illumination levels for various activities and spaces.	L2,L5
CO4	Understand the space requirements and distribution of electrical service provisions.	L2,L3
CO5	Understand the lighting principles and different electric light sources available	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L3	H	H	H	M	M	M	L	L	L	L	M	M	H
CO2	L2,L5	L	L	L	M	M	M	M	M	M	M	M	M	H
CO3	L2,L5	M	M	M	M	M	H	H	H	H	L	H	H	H
CO4	L2,L3	H	H	H	M	M	M	M	M	M	M	H	H	H
CO5	L3	M	M	M	M	M	M	L	L	-	L	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO4,CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : CONSTRUCTION MATERIALS–VI
Subject Code : 6JAR3

Course Objectives:

1. To introduced the details about the precast, pre stresses constructions.
2. To study various low-cost materials with the physical properties.
3. Application of all building materials for designing purpose.
4.

Content

Unit Ferro cement, Precast construction pre-stressed construction.
Low cost building material.

Reference Books :

1. Architecture & materials by Benitez Cristira C.
2. Building materials by Varghese P C
3. Engineering Materials by Rangwala
4. Introduction to Engineering Materials by Agarwal
5. Smart Materials in Architecture, Interior Architecture and Design by Axel Ritter
6. A Textbook of Strength of Materials by Dr. R.K. Bansal
7. Architecture Materials
8. Architecture Materials Words by Holz (Bois)
9. Architecture Materials Concrete
10. Architecture materials Glass
11. Mitchell's Materials by Alan Everett

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Gain the knowledge of various building material.	L1
CO2	Understand the application of new technology	L2,L3
CO3	Learn how to celebrate new technology with old construction and techniques.	L2,L3
CO4	Understand the advantages and disadvantages of the LOW COST materials.	L2,L3,L4
CO5	Develop the skills of the selection of the materials and usage	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO10	PSO 1	PSO 2	PSO 3
CO1	L1	M	M	M	M	M	H	H	H	L	L	M	M	M
CO2	L2,L3	L	L	-	L	M	M	-	-	-	-	H	H	H
CO3	L2,L3	H	H	H	H	M	M	M	M	M	M	L	H	H
CO4	L2,L3,L4	M	M	M	-	M	M	M	L	L	-	L	L	L
CO5	L3	L	L	L	L	L	M	M	M	M	M	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL STRUCTURES–VI
Subject Code : 6JAR4

Course Objectives:

1. To introduce structural material i.e. structural steel and their mechanical properties, familiarize various elements/ component of steel structures,
2. Analysis of structure and behaviour of each element under static gravity loading.
3. Introduce the concept of design of structural members of steel structure building subjected to tension, compression, shear and bending.

Content

Unit I **Introduction**

Introduction to steel structures, their advantages and disadvantages in comparison of concrete structures; types of structural steel; properties of structural steel; rolled steel sections; types of loads and load combinations; safety factors.

Design requirements; limit state philosophy; design strength; deflection limits and other serviceability limits; introduction to IS 800:2007 and steel tables; important definitions and various sectional properties.

Unit II **Bolted Connections**

Introduction to bolted and riveted connections; types of bolts; advantages and disadvantages of bolted connections; types of bolted joints; IS specifications for spacing and edge distances of bolt holes, types of failures in bolted connections; design and analysis of bolted connections as per IS 800:2007; eccentric connections.

Unit III **Welded Connections**

Introduction to welded connections; types of welded joints; advantages and disadvantages of welded connections; important specifications; design stress in welded joints; reduction in design strength for long joints; design and analysis of welded connections.

Design of tension members; design strength of tension member; design procedure for tension members.

Unit IV **Design of Compression Members**

Buckling class of section; slenderness ratio; effective length & actual length; shapes of compression members (single and combined sections); introduction to composite sections i.e. lacing and battening systems; design of column base

Unit V **Design of Beams**

Plastic moment carrying capacity of a section; sectional classification; design procedure; bending strength of laterally supported beams; shear strength of laterally supported beams; deflection limits; web buckling; web crippling; flange curtailment; introduction to built up sections; purlin design; design of grillage beams.

Reference Books :

1. Structural Steel Drafting and Detailing by R.B. Shivagunde & R.B. Asthana
2. Analysis of structures by Thandavamo
3. Design of steel structure by Bhavikatti (S.S.)
4. Design of steel structures by Negi
5. Limit State Design of Steel Structure by Duggal S K
6. Structural Plastic Selection Manual by ASCE
7. Design of Steel Structures by B. C. Punmia

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn structural system and its use in buildings.	L1,L3
CO2	Understand the steel structures applications in buildings.	L2,L3
CO3	Understand the designing of structural members	L2,L3,
CO4	Understand the joint techniques	L2,L3
CO5	Understand the beams and column design	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L3	H	H	M	M	M	L	L	L	L	L	H	H	H
CO2	L2,L3	L	M	M	H	H	L	L	L	-	-	M	H	M
CO3	L2,L3,	H	H	H	H	M	M	M	M	M	M	M	M	M
CO4	L2,L3	M	M	M	M	M	H	H	H	H	H	M	M	M
CO5	L3	H	H	H	H	H	H	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DESIGN–IV & FIELD TRIP
Subject Code : 6JAR5

Course Objectives:

1. How to design in developing urban areas.
2. Characteristics of a public building
3. Understanding correlation between function, structure, material, construction services.

Content

Unit I Design of a building to understand the relation between function and structure;
The idea of form follows function and vice versa;
The structural system as a design element, this design concept is to be constructed with the understanding of material and construction techniques and various services needed for the functions of the building.

Project : Design of multistory residential apartment building or commercial building or multiuse public building.

Reference Books :

1. 25 Apartments & Lofts under 1000 Square feet Truelove by (James Grayson)
2. Asian Apartments by Felerbend
3. Malls & Department Store by Chris Van Uffelen
4. Design Apartments
5. New Apartment Design
6. Time Saver Standards for Building Types by Dechiara & Others
7. The Elements of Style by Chlloway (Stephen)
8. Time Saver Standards for Urban Design by Donald Watson
9. Design Elements: Form & Space by Dennis M. Puhalla

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Design for multiple groups of users with due consideration to site, climate, services, bye-laws.	L3
CO2	Understand the relationship between design and urban setting.	L2,L3
CO3	Derive a design process and design solution for a public building.	L2,L3,L6
CO4	Learn the importance of the team work and enhancement of skills in expressing, demonstrations and presentation	L2,L3,L4
CO5	Understand the local building bylaws and follow up in the design.	L2,L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L3	H	H	M	M	M	L	L	L	L	L	H	H	M
CO2	L2,L3	M	M	M	M	L	L	L	H	H	H	M	H	H
CO3	L2,L3, L6	M	M	M	L	L	M	L	M	M	M	M	H	H
CO4	L2,L3, L4	H	H	H	H	H	H	H	M	M	M	M	H	H
CO5	L2,L3	H	H	H	H	H	H	H	H	H	H	M	M	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : WORKING DRAWINGS
Subject Code : 6JAR6

Course Objectives:

1. Architectural detailing and execution drawings.
2. The building design is executed through several construction drawings prepared in sequence and other constructional details along with it, all such drawings in a set of architectural drawings and other allied services drawings such as structural design drawings, mechanical services drawings and other services drawings for smooth execution of construction.
3. The objective of this course is to study and prepare detailed construction drawings to facilitate ease of construction with these execution/working drawings to larger scales for more clarity of details.

Project : Multistore apartment building or commercial building in urban context.

Content

Unit I Introduction to various building components and precise purpose of set of working drawings. Study of each drawing with reference to specification & schedules of various building materials.

Preparing Construction drawings - plan, section, elevations, details, electrical, plumbing finishes, flooring, etc.

Unit II Preparations of check list as guide for list of working drawings. Study of building byelaws for various construction details. Method of representing various contents & specific information in working drawings.

Preliminary estimates.

Unit III Preparation of municipal drawings and importance of working drawing as a legal document and tender document.

Unit IV One set of working drawing of any load bearing structure along with large-scale details of any specifically designed situations.

Unit V List of drawings (Sample)

- Corporation drawing / Municipal Drawing
- Center line plan
- Excavation plan
- Footing layout plan, footing detail
- Beam (ground beam and plinth beam),beam detail
- Sill level plan, schedule of openings
- Lintel level plan
- Slab level ,slab beam detail
- Frame detail etc.

Reference Books :

1. The Professional Practice of Architectural Working Drawings by Osamu A. Wakita

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Impart enough skill to prepare working drawings for the ease of construction with proper workmanship assurance in accordance with the specifications and the contract document and to the satisfaction of the Architect.	L3
CO2	Implement drawings on site.	L2,L3,L6
CO3	Understand the work process and time management of work on site.	L2,L3,L6
CO4	Understand the space utilization on construction time	L2,L3,L4
CO5	Balance with environment on and after construction	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L3	H	H	H	H	H	H	H	H	H	H	L	L	H
CO2	L2,L3, L6	H	H	H	H	H	H	H	H	H	H	H	L	H
CO3	L2,L3, L6	H	H	H	H	H	H	H	H	H	H	H	H	M
CO4	L2,L3, L4	H	H	H	H	H	H	H	H	H	H	M	M	M
CO5	L3	H	H	H	H	H	H	H	H	H	H	M	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING ECONOMICS
Subject Code : 6JAR7

Course Objectives:

1. Basic principles of building economics at macro and micro levels
2. Understanding society and its issues
3. Understanding the demand of supply system and consumption.

Content

Unit I General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices inflation and inflationary pressures.

Unit II Economics of private and public housing development, Concepts of Project Life Cycle from pre-feasibility studies to monitoring and evaluation.

Unit III Introduction to Social Cost Benefit Analysis, Economics of use of different building materials and construction methods (labor vs. capital intensive).

Unit IV Pricing of utilities and services, Concept of Toll and User Charges, Globalization and impact of global economy on India.

Unit V General economic concepts, demand and supply consumption, production distribution and its relevance to economics, Money, banking and bank credits, cost and cost indices inflation and inflationary pressures.

Reference Books :

1. Managerial Economics by Raj Kumar & Kuldip Gupta
2. Engineering Economics by R.Panneerselvam
3. Managerial Economics by V L Mote
4. Managerial Economics by D N Dwivedi
5. Principles of Economics by Karl E. Case & Ray C. Fair
6. Bridge Design for Economy & Durability by Pritchard (Brian)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Understand and apply economic principles in building construction projects.	L1,L2
CO2	Understand the General economic concepts and relating their relevance in architectural projects	L2,L3
CO3	Understand the Globalization and impact of global economy on India.	L2,L3
CO4	Understand the concept of money, banking and bank credits, cost and cost indices inflation	L2,L3
CO5	Develop the skills to handle the clients and serving the proper financial assistance	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	M	M	M	-	M	-	-	-	L	L	H	H	M
CO2	L2,L3	L	L	L	M	M	M	M	H	H	H	H	H	M
CO3	L2,L3	-	-	-	H	H	H	M	M	M	M	H	H	M
CO4	L2,L3	M	M	M	M	M	M	M	M	M	M	M	M	M
CO5	L4	H	H	H	H	M	M	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING CONSTRUCTION–VI
Subject Code : 6JAR8

Course Objectives:

1. To study construction of north light and aluminium sections.
2. Study of Different type of walls like curtain wall.
3. Study of Structural member like lintel, sill roof etc.

Content

Unit I Sky Light,
North Light.

Unit II **Curtain walls**

- Introduction to curtain wall construction, its advantages, shading, structural glazing, etc.
- Metal and aluminium sectioned curtain wall.
- R.C.C. curtain wall

Special purpose curtain wall with reflective glazing, insulation, etc.

Unit III Structural Glazing, Mental Cladding,

Unit IV Section windows, Aluminium windows.

Unit V Pre-cast construction.

Notes :

1. Mid Term Exam shall be as of Unit I to III.
2. There shall be regular site visits to buildings, under construction or constructed, to explain the above topics. Use of audio-visuals should be stressed.
3. Sessional work shall be done as scaled drawing on drawing sheets and freehand drawings along with occasional visits to construction sites.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings
14. Building Construction by Sushil Kumar
15. Mitchell's Introduction to Building by Roger Greeno & Derek Osbourn

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	recognise the various glazing techniques like structural glazing, curtain wall construction and its advantages,	L2,L3
CO2	understand the joinery details of metals in different building elements (doors, windows)	L2,L3
CO3	apply the properties of metal and its use in creating various techniques used in building	L2,L3,L6
CO4	evaluate the selection of light gaining techniques like sky light, north light and their use as per climate	L2,L3,L5
CO5	develop the knowledge about the pre cast constructions and its necessary details	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L1,L2	M	M	H	H	H	H	H	H	L	L	L	L	L
CO2	L2,L3	L	L	L	M	M	M	M	H	H	H	L	L	M
CO3	L2,L3	M	M	M	M	M	M	L	L	L	L	M	L	L
CO4	L2,L3	H	H	H	H	H	H	H	M	M	M	M	M	M
CO5	L4	M	M	M	M	M	M	M	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE–II - CONSTRUCTION MANAGEMENT
Subject Code : 6JAR9.1

Course Objectives:

1. To understand the principles and need of construction management.
2. To introduce different management techniques suitable for planning and constructional projects.
3. To introduce and explore the management system for accomplishing the task efficiently in terms of both time and cost.

Content

Unit I **Introduction:**

- Introduction to project management concepts, objectives, goals and different aspects of management.
- Traditional management system.
- Gantt's approach, bar charts, project programming, time estimates etc.
- Need of Construction Management: Importance and aspects
- Role of Architect in Construction Management
- Cost Management

Unit II

- Project programming,
- Resource balancing,
- Phasing of activities,
- Programme scheduling,
- Project control, reviewing, updating and monitoring,
- Modern management concepts.

Unit III Project Assessment & project cost jobs size, divisions of responsibilities, liaison with owners and their representatives, feasibility study, project report, construction-financing facilities etc.

Unit IV **Construction Management:**

- Conditions of contract, their application, quality and quantity controls, time and cash contract, recording, checking and certifying with coordination of all building activities.
- Safety Management
- Total Quality Management (TQM)
- Risk Management

Unit V **Project monitoring:**

C.P.M. P.E.R.T. & other one-dimensional techniques for project planning scheduling and control.

Reference Books :

1. Construction Management & Mach. byGupta & Gupta
2. Construction Management & Accounts by N.L.Panday

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Learn different management techniques suitable for planning and constructional projects.	L2,L3
CO2	Understand the course of a work from the start to the finish to analyses before the commencement of the project	L2,L3
CO3	Learnhow to manage different construction activity with their time an calculation of time management.	L2,L3
CO4	Learn how to evaluate site work	L2,L3,L4
CO5	able to coordinate with different team at a same time in different projects.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L2,L3	M	M	L	L	L	L	L	M	M	M	M	H	M
CO2	L2,L3	L	L	L	M	M	M	M	H	H	H	H	M	H
CO3	L2,L3	M	M	M	M	M	M	L	L	L	L	H	H	M
CO4	L2,L3, L4	M	M	M	M	H	H	H	H	H	M	M	M	L
CO5	L3	M	M	M	M	M	M	M	M	M	M	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE–II – SUSTAINABLE ARCHITECTURE
Subject Code : 6JAR9.2

Course Objectives:

1. To introduce the students to the theoretical and practical aspects of sustainable design and the various technologies involved in executing them. To familiarize the student with some of the acclaimed sustainable buildings with various tools, design methodology, resource optimization and innovative approaches to eco-design within the past decade.
2. Understanding of different green building material.
3. Understanding Different passive techniques.

Content

Unit I Introduction to Sustainable Development and Architecture

a. Definitions and Principles
b. Environmental Impact of Buildings
c. Sustainable design priorities
d. Cultural and Economic aspects
e. Life Cycle Design

Selected Examples of Sustainable Architecture – Vernacular, Historical and Contemporary

Unit II Sustainable Building Materials and Technology

Sustainable building materials and technologies are being introduced in the building industry every day. These are being codified and standardized. We are living in an era of catalogue architecture, this unit would therefore would lay more emphasis on traditional building systems, methodologies and on the use of alternate/ substitute and environment friendly materials, local and/ or low coast building materials which are cost effective, environment friendly and appropriate to the context of the site, climate and culture.

Topics to be covered:

1. **Bamboo**
   a. Traditional Methods
   b. Rope joints and split bamboo
   c. Bamboo as roofing, wall and floor material
   d. Insulation material and bamboo mats

2. **Wood**
   a. Traditional methods and classification
   b. International and National Certifications
   c. Reconstructed timber
      i. Plywood
      ii. Block board
      iii. MDF, HDF etc.
      iv. Particle board
      v. Veneers

d. Types of joints and workshops

3. **Mud**
   a. Traditional and vernacular methods in India
   b. Rammed earth const.
   c. Auroville construction
   d. Mud/ clay bricks
4. **Conventional Construction Material**
   a. Brick
   b. Cement and concrete
   c. Steel and iron
5. **Contemporary innovations in sustainable construction material**
6. **Recycled Building Materials**

Life cycle of construction material

Unit III **Ecology and Environmental Management**

With global warming and environment protection major areas of concern across nations, environmental management course is a critical area of study for all Architects. This unit, thus covers the concepts and basic understanding of sustainable design and development with a special concern for ecosystem benefits and impacts at the site, local, regional, and global scales.

Unit IV **Integrating the concepts of Climatology and Building design for sustainable building**

A very important component of sustainability in buildings has to do with the fact that they have to respond to the climate in which they are sited. This unit aims to cover the various climates, mainly in India, and the implications of each for building design in these respective climates. It shall also cover concepts of human thermal comfort and its measurement.

Unit V **Energy Efficient Building Design – Theory and Technologies**

The unit will cover the understanding of design and construction techniques for reducing load, and passive/ hybrid design strategies to provide low energy heating and cooling in buildings while maximizing effective use of daylight.

Reference Books : Sustainable Ecosystems by Battle (Guy)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Conceptualization of large span constructions	L2,L3
CO2	Learnt how to design comfort space.	L6
CO3	Learnt different strategy of natural cooling and heating process	L2,L3,
CO4	Learn balancing between design and environment	L2,L3,L4
CO5	Use of material according to climate	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PSO1	PSO2	PSO3
CO1	L2,L3	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L6	H	H	H	M	M	M	M	M	M	M	M	M	M
CO3	L2,L3,	M	M	M	M	M	M	L	L	L	L	H	H	H
CO4	L2,L3, L4	H	H	H	H	H	H	H	H	H	H	H	H	H
CO5	L3	H	H	H	H	H	M	M	M	M	M	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE–II
LOW COST CONSTRUCTION AND TECHNIQUES
Subject Code : 6JAR9.3

Course Objective:

1. To understand the various low-cost design systems.
2. Understand use of materials, construction and execution techniques in design of low-cost buildings.
3. Understand process of construction technique.

Content

Unit I Introduction to Low Cost Building Design (Planning & Designing aspects) & Sustainability and components of buildings influencing the cost

Unit II Evaluation of building forms based on functions, materials and construction techniques.

Unit III Prefabrication, Modular Coordination, Fly ash, Rationalization, Cost and Usability

Unit IV Low cost building materials, methods and techniques by CBRI, HUDCO, Development Alternatives, Laurie Baker, Anil Laul, Revati Kamathetc.

Unit V Traditional Materials & Techniques
Publications of COSTFORD

Reference Books :

1. Hand book of Low Cost housing by A.K. Laul
2. Laurie Baker – Life, Works and Writing by Gautam Bhatia
3. Low Cost Architecture by Joseph Maria Minguet

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To study the traditional materials and techniques related to low cost construction.	L1,L2
CO2	To study and analyse the works of different architects who have worked in low cost construction.	L2,L3
CO3	To study the locally available low-cost materials in different regions.	L2,L3
CO4	To understand the use of materials, construction and execution techniques in design of low-cost buildings.	L2,L3
CO5	To understand the planning and designing aspects of low-cost houses.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	H	H	H	H	H	H	H	H	H	H	H	M	M
CO2	L2,L3	M	L	L	L	L	L	L	H	H	H	M	H	H
CO3	L2,L3	M	M	M	M	M	M	L	L	L	L	H	M	M
CO4	L2,L3	H	H	H	H	H	H	M	M	M	M	H	M	M
CO5	L3	H	H	H	H	H	H	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE–II - DESIGN FOR DISABLED
Subject Code : 6JAR9.4

Course Objectives:

1. To create awareness about the concept of 'access for all' to public buildings / premises and universal design.
2. To sensitise students to understand the importance of designing barrier free built environments.
3. To provide an overview of the barrier free design requirements and legislative obligations.

Content

Unit I Introduction of the Subject and Defining Disability.

A. In physical terms, the provision of a barrier-free environment can be undertaken in four complementary domains:
   - Inside buildings;
   - In the immediate vicinity of buildings;
   - On local roads and paths;
   - In open spaces and recreational areas.

B. The target group is composed of five major categories:
   - Wheelchair users
   - People with limited walking abilities
   - The sightless
   - The partially sighted
   - The hearing impaired

Unit II Understanding the Basic Design Issues and Anthropometrics Related to Various Disabilities.

Unit III **Design Considerations**

A. Architectural design considerations:
   - Ramp
   - Elevators
   - Lifts
   - Stairs
   - Railings and handrails
   - Entrances
   - Vestibules
   - Doors
   - Corridors
   - Rest rooms

B. Urban Design Considerations:
   - Obstructions
   - Signage

- Street Furniture
- Pathways
- Curb Ramps
- Pedestrian Crossing
- Parking

Unit IV **Accessibility Requirements of Selected Building Types.**

- Residential buildings
- Office Buildings
- Commercial Buildings
- Assembly halls
- Cafeterias and Restaurants
- Hotels
- Hospitals and Health facilities
- Educational Building
- Libraries
- Sports Building
- Public Transit Buildings
- Industrial Buildings

Unit V Implementation Checklist for Designers and Inspectors to identify and Assess Physical Barriers in the Built-Up Environment, for both new and Existing Constructions.

Reference Books :

1. Council of Architecture
2. Design for Aging Review by Yee (Roger)
3. A Design Manual: Living for the Elderly by Eckhard Feddersen
4. Design Manual for a Barrier Free Built Environment by Ar. Yatin Pandya

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To enable students to learn about various especially able people and their respective requirements to lead a normal life.	L1,L2
CO2	To sensitize students to understand the importance of designing barrier free built environments	L2
CO3	To learn the application of barrier free design at different public spaces.	L2
CO4	To understand the implementation of various factors in existing and new buildings.	L2,L3
CO5	To thoroughly study the norms prepared by the government for specially challenged people.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L2	H	H	H	H	H	H	H	M	M	M	H	M	M
CO3	L2	L	L	M	H	H	H	M	M	M	M	M	H	H
CO4	L2,L3	M	M	M	M	M	M	M	M	M	M	H	H	H
CO5	L3	M	M	H	H	H	H	H	H	H	M	H	H	H

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : COMPUTER APPLICATION IN ARCH–IV
Subject Code : 6JAR10

Course objectives:

1. Three dimensional explorations and presentations.
2. Skills and information to build comprehensive Building Models using appropriate Digital software.
3. Understanding of Software for improve working time efficiency.

Content

Unit I Making Drawing in Revit, Architectural Applications and Rendering, Digitizing Maps, Creative Explorations on Computers

Reference Books :

1. Computer Fundamentals by Singh
2. Fundamental of Computers by Lamba (C.S.)
3. Fundamentals of Computer by Rajaraman
4. Introduction to Computer by Norton, P.
5. Foundations of Computing by Sinha & Sinha

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To recognize the use of CAD tools and its techniques for architectural designing	L1,L2
CO2	To prepare the exterior and interior views of building	L2,L3
CO3	To relate the parameters of handmade drawings with the CAD tools	L2,L3
CO4	To demonstrate an understanding of application of light backgrounds	L2,L3
CO5	To prepare and improve the conceptual ideas and presentation renderings as a design presentation tool for various purposes	L3,L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1,L2	L	L	M	M	M	M	M	M	M	M	H	H	M
CO2	L2,L3	M	M	M	M	M	M	M	M	H	H	M	H	M
CO3	L2,L3	L	L	M	H	H	H	M	M	M	M	M	M	H
CO4	L2,L3	M	M	M	M	M	M	M	H	H	H	H	H	H
CO5	L3,L5	H	H	H	H	H	M	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3 CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3 CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3 CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3 CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3 CO4, CO5

Subject Name : EDUCATIONAL TOUR
Subject Code : 6JAR11

Course Objectives:

1. Practical understanding of architecture and people.
2. Understanding of socio culture of different locations.
3. Understanding the aesthetic value of urban fabrics.

Content	
Site Visit	Visit to places with historical buildings and contemporary buildings and studying the Architecture, use of space and experience of space. Documenting the building through sketches, photography and drawings.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Effective learning	L1,L2
CO2	Personal Development	L1'L2
CO3	Deepen social and architectural knowledge	L2,L3
CO4	Learning the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L2,L3
CO5	Enhances Perspective	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1,L2	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L1'L2	H	H	H	H	H	H	H	H	H	H	H	M	M
CO3	L2,L3	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L2,L3	H	H	H	H	H	H	H	H	H	H	M	M	M
CO5	L3	H	H	H	H	H	H	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : AANANDAM
Subject Code : 6JAR12

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

K. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

L. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 6JAR13 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	LO8	PO9	PO10	PSO1	PSO2	PSO3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - VII

THEORY

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	7JAR1	Contract Documents & Byelaws	CORE	30	70	100	1	1	2
2	7JAR2	Building Services-III (Mechanical Services)	CORE	30	70	100	2	1	3
3	7JAR3	Building Science-II (Acoustics & Illumination)	CORE	30	70	100	2	1	3
4	7JAR4	Architectural Structures-VII	CORE	30	70	100	1	1	2
5	7JAR5	Introduction to Settlement Planning	CORE	30	70	100	1	1	2
		SUB TOTAL		**150**	**350**	**500**	**7**	**5**	**12**

SESSIONAL

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credit
6	7JAR6	Architectural Design-V & Field Trip	CORE	150	100	250	_	8	8
7	7JAR7	Advanced Building Construction	CORE	60	40	100	1	2	3
8	7JAR8	Introduction to Settlement Planning (studio)	CORE	60	40	100	1	3	4
9	7JAR9	Dissertation	AECC	120	80	200	_	4	4
10	7JAR10	Elective 7JAR10.1 Alternate Energy systems in Architecture 7JAR10..2 Vernacular Architecture	GE DSE	60	40	100	1	1	2
11	7JAR11	Professional Skills	SEC	60	40	100	1	1	2
12	7JAR12	AANANDAM	AECC	50	50	100	1	1	2
13	7JAR13	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**560**	**390**	**950**	**5**	**20**	**25**
		GRAND TOTAL		**710**	**740**	**1450**	**12**	**25**	**37**

*** 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.**

Subject Name : CONTRACT DOCUMENTS & BYELAWS
Subject Code : 7JAR1

Course Objective:

1. Architectural practice and building regulations.
2. To provide students insight of building codes and norms, their need and nature of building codes, standards and regulations.
3. Understanding of bylaws according to their location and type of construction.

Content

Unit I **Contracts:** Nature of building contracts: Tenders - calling, scrutiny and recommendations, open and selective tender systems; two stage tender scrutiny process. Pre-tender qualifications and registrations of contract: obligations and responsibilities of clients, contractors and architects.

Unit II **Building Bye-Laws-I**

- Building bye-laws – their need and importance, advantages.
- Study of building bye-laws - means of access, open spaces, parts of buildings (as per NBC).
- Building bye-laws with respect to various plot sizes, building types and height restrictions, air funnel.
- Lighting, sound and HVAC (as per NBC).
- Firefighting regulations
- Parking regulations
- Deposits, Labour Laws and Obligations: disputes and settlement of disputes.

Unit III **Building Bye-Laws-II**

- Building bye-laws for special zones viz., airport, hospitals, residential, commercial, Cinema theatres, SEZ etc.
- Development control and aesthetic control bye-laws, sky plane, front and rear angles.
- Other building standards including state and municipal byelaws
- Building by-laws: ground coverage, FSI calculations, building height regulations, building use regulation, NA – NOC, BU certificate. Buildings services approvals and completion certificate procedure.

Unit IV **Development controls at settlements level.**

- Eminent domain, police powers, zoning controls, etc.
- Sub-division regulations.

Land development standards and municipal byelaws in various states.

Unit I **Contracts:** Nature of building contracts: Tenders - calling, scrutiny and recommendations, open and selective tender systems; two stage tender scrutiny process. Pre-tender qualifications and registrations of contract: obligations and responsibilities of clients, contractors and architects.

Reference Books :

1. Architects Act 1972.
2. Publications of Handbook on Professional practice by IIA.
3. Publications of Council of Architecture-Architects (Professional conduct) Regulations 1989, Architectural Competition guidelines
4. Roshan Namavati, Professional practice, Lakhani Book Depot, Mumbai 1984.
5. J.J. Scott, Architect's Practice, Butterworth, London 1985.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: Gauge the importance of building regulations and byelaws in development.	L1
CO2	CO2: Apply these to actual building design.	L1,L2
CO3	CO3: Application of bylaws in special economic zones areas.	L2,L3
CO4	CO4: Design limitation as per norms	L3
CO5	CO5: Learn the work process of excitation with limitations	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	M	M	M	M	M	M	H	H	H	M	M	M
CO2	L1,L2	H	L	L	L	L	L	L	H	H	H	H	M	M
CO3	L2,L3	H	L	L	L	M	M	M	H	H	H	H	H	H
CO4	L3	M	M	M	M	H	H	H	H	H	H	H	H	H
CO5	L2	H	H	H	H	H	H	H	H	H	H	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING SERVICES–III (Mechanical Services)
Subject Code : 7JAR2

Course Objectives:

1. Understanding mechanical services for building design.
2. The aim of the course is to respond to the space and system requirements for Mechanical Systems and Services associated with the building and its premises including electro-mechanical means of vertical transportation in buildings and HVAC services in the building.
3. Understanding of intelligent buildings / Building Automation System and their major components and integration.

Content

Unit I **Basic principles of refrigeration, refrigeration cycle and system components.**

- Basic operation of refrigeration systems
- Principle components of refrigeration systems
- Thermodynamic principles of refrigeration cycle
- Safety considerations

Unit II **Air cooling and air conditioning, planning and design considerations**

- Basic operation and functioning of air cooling and air conditioning systems
- Principle components of air cooling and air conditioning systems
- Safety considerations
- The fundamental principles of Psychometrics and heat transfer.
- Methods of Air conditioning, Fittings, fixtures, accessories and equipment used in various types of air-conditioning along with their construction details and basic load calculations.
- A.C. duct design and layout with constructional details. (Including calculations.)
- Planning and design considerations of air cooling and air conditioning systems

Unit III **Psychometric chart and its use.**

- Understanding the concept of psychometrics.
- Thermodynamic properties of moist air.
- Understanding the concept of Psychometric Chart.
- Use of the Psychometric Chart.

Unit IV

- Lifts and movable walkways, escalators including study of their operation, function, layouts and design details.
- Appliances, equipment's and systems for fire safety of buildings, (particularly high rise) including study of their function, operation and construction details.

Lifts, grouping of lifts, return time, design of lift banks for carrying capacity and travel time, installation requirements, escalators.

- Lists and escalators, an overview
- Typical parameters in design of elevator systems (lifts and escalators) in a building.
- Location of elevators (lifts and escalators).
- Lift technologies.
  - ✓ Traction lifts
    a. Geared lifts
    b. Gearless lifts
    c. Machine room less lifts
  - ✓ Hydraulic lifts
- Lift components and types

Design considerations and installation methods of elevator systems (lifts and escalators).

Unit V Fire extinguishing system, warning systems, fire resistant doors, planning of buildings for fire escapes, Solar water heating systems.

Reference Books :

1. E.P.Ambrose, Electric Heating, John Weley & Sons Inc., New York, 1968
2. Philips Lighting in Architectural Design, McGraw Hill. New York, 1964
3. R.G. Hopkenson& J.D.Kay, The lighting of Buildings, Faber & Faber, London, 1969 Conveying systems
4. Elevators, Escalators, Moving Walkways – Manufactures catalogues
5. Handbook of building Engineers in metric systems, New Delhi 1968
6. National Building Code

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: To inculcate a fair understanding of integration of various mechanical systems and services.	L1
CO2	CO2: Implication on architectural space design and facilitation.	L3
CO3	CO3: Application and importance of psychometric chart in planning	L2,L3
CO4	CO4: Design a building with fire safety norms	L3
CO5	CO5: Uses of MEP services	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	H	H	H	H	M	M	M	M	M	H	H	H
CO2	L3	M	M	M	M	L	L	L	H	L	L	M	H	H
CO3	L2,L3	L	M	M	M	M	M	L	L	L	L	M	M	M
CO4	L3	M	M	M	H	H	H	H	H	H	M	M	M	M
CO5	L4	M	M	M	M	H	H	H	H	H	H	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : BUILDING SCIENCE-II (Acoustics & Illumination)
Subject Code : 7JAR3

Course Objectives:

1. Understanding Acoustics and Illumination in building designs.
2. The course is based on Architectural Acoustic theory and practice.
3. It shall deal with the physics and perception of sound, the characteristics of sound and vibration in spaces, and their influence in the development of holistic design concepts.

Content

Unit I Introduction about Sound and Noise:

- Fundamental Properties and characteristics of sound. (Frequency, wavelength, velocity, pressure, pressure level, intensity, pitch, tone, loudness, timbre etc.)
- Noise: Physiological and Psychological impact of noise on human beings.
- Noise criteria for various spaces viz: Living areas, Educational areas, Offices, Shopping etc.
- Measures to control noise nuisance (Air borne and Structure borne) in residential, educational, commercial, and Industrial areas along with calculations.

A. Basic Terminology and definitions:

- Physics of sound
- Sound
- Intensity & loudness
- Characteristics of sound-frequency, amplitude, speed.
- Reverberation time, absorption coefficient, echo, all the units related to sound

Effect of physical condition on sound-temperature, humidity, pressure

Unit II Behavior of Sound:

- Behavior of sound in open and enclosed spaces with reference to the form of enclosures, and various surface finishes. (Reflection, Absorption, Diffraction, Insulation, Transmission, Echo, Resonance, Reverberation etc.)
- Acoustical materials along with their properties, behavior, selection criteria, use, and construction details.
- Criteria for acoustic environment-type of Building, usage, Geometry shape, Surfaces, Sound absorption, Selection of acoustical materials & their application – for wall / partition, ceiling, floor
- Noise control techniques and their applications. Predictions of acoustical conditions and approach to designing enclosure for predetermined acoustical responses, corrective of existing deficient enclosures.

Unit III Acoustical Design:

- Reverberation time, Sabine's formula along with the limitations and prerequisites.
- Acoustical design measures for live acoustical environment in enclosures used for various purposes viz. Classrooms, Lecture halls, Auditoriums, Seminar Halls, Conference rooms, Meeting rooms, Theatres, Music concert halls, Opera houses, Dance halls, Open air theatres, Movie

Theatres, Meditation centres, Group prayer halls etc.

- Noise-physiological and psychological effects, transmission loss, flanking of sound, structure borne sound and noise from different mechanical equipment's.

Unit IV Illumination:

- Light and its propagation, reflection, radiation, transmission and absorption.
- Definitions and units of flux, solid angles, luminous intensity, brightness etc.
- Laws of illumination, types of illumination schemes – direct, semi direct, indirect and diffused lighting and their design considerations.
- Principles of lighting including calculations for desired illumination on different working planes for various activities like reading, writing, drawing, domestic works, industrial jobs etc.
- Designing of lighting for various types of buildings like residential, educational, offices etc.
- Lighting for special purposes viz. Exhibitions, Theatres, Stadiums, Swimming pools, Cinemas, Assembly halls, Restaurants, Religious buildings etc along with study of Direct, Indirect, Flood, Concealed, Focus light etc.
- Over illumination controlling measures.
- Laws of illumination, Design for lighting, classification of lighting system, direct, diffused, indirect etc. Artificial light sources, types and their use limitations.

Unit V Illumination Method:

- Standards of Illumination required for various activities.
- Light flux method for calculation of number of lamps for illumination.
- Types of Luminaries for interior and exterior lighting. Residential, commercial, industry, flood and street lighting.
- Tests before commissioning of electrical services.
- Introduction to sound reinforcing system- amplification and distribution. Introduction to illumination. Use of artificial lighting as an element in architectural scheme particularly exhibitions, theatres, offices and stores etc. lighting for road traffic, decorative and flood lighting.

Note: Sessional assignment will be based on above units in the form of seminars, study and reports.

In theory examination there will be a separate question from each unit with choice within the unit/question. All units/questions will be compulsory.

Reference Books :

1. Dr.V.Narasimhan - An Introduction to Building Physics - Kabeer Printing Works, Chennai-5 - 1974.
2. D.J.Groomet - Noise, Building and People - Pergumon Press - 1977.
3. Thomas D.Northwood - Architectural Acoustics - Dowden, Hutchinson and Ross Inc. – 1977.
4. B.J.Smith, R.J.Peters, Stephanie Owen - Acoustics and Noise Control - Longman Group Ltd., - New York, USA - 1982.
5. David Eagan concepts in Architectural Acoustics.
6. Harold Burris – Meyer and Lewis Good friend, Acoustics for Architects – Reinhold

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: To understand the different phenomenon and principles related to sound propagation.	L1
CO2	CO2: To understand the common acoustical defects in auditorium and the ways to rectify them.	L2
CO3	CO3: To understand different types of sound transmissions and measures to control them.	L3,L4
CO4	CO4: To understand the importance of illumination in a building design and to apply the various techniques of natural and artificial lighting.	L3
CO5	CO5: To learn all the principles and energies behind illumination.	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
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CO2	L2	M	M	-	-	-	M	M	M	M	M	M	H	M
CO3	L3,L4	-	-	M	M	M	M	L	L	L	L	M	M	M
CO4	L3	M	M	M	M	M	M	M	M	H	H	M	M	M
CO5	L2	H	H	H	H	H	M	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL STRUCTURE-VII
Subject Code : 7JAR4

Course Objectives:

1. Conceptual study of Advance Frame construction structures with reference to high rise buildings and surface structure.
2. Study of different types of arches.
3. Study of pre and post stressing methods.

Content

Unit I Pile and raft foundations Beams and columns and various types of supporting systems cantilever and propped cantilever, Continuous and fixed beams and their behaviour under load.

Unit II Definition of determinate and indeterminate structures, redundant frames static and kinematic indeterminacy of beam.

Unit III Cylindrical, parabolic and flat arches, advantages and limitations.

Unit IV Simple framed structures and trusses advantages and limitations.

Unit V Conceptualizing and understanding of surface structures shells. Domes and folded plates. Slope deflection and Knai's methods for analysis of continuous beams and simple portal frames.

Pre-stressing – Methods and losses in pre-stressing, comparison of RCC and pre stressing. Pre stressing concrete beams.

Reference Books :

1. Theory of Structures by Ramamrutham & Nara
2. Theory of Structures by B. C. Punmia
3. Theory of Structures by Khurmi R.S.
4. Steel Table by Agor R

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: To learn structural system and its use in buildings.	L1
CO2	CO2: Understanding of advance Frame structures applications in buildings.	L2
CO3	CO3: Learnt how to calculate the load for different type of structures for designing.	L3,L4
CO4	CO4: Learn how to balance between design & structure	L3
CO5	CO5: Able to balance between structural system with the design façade and planning	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
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CO1	L1	H	M	M	M	M	M	M	L	L	L	H	H	H
CO2	L2	M	M	L	L	L	L	L	M	H	H	M	H	H
CO3	L3,L4	H	H	L	L	L	L	M	M	M	L	M	M	M
CO4	L3	M	M	M	M	M	M	M	M	M	M	M	M	M
CO5	L3	M	M	M	M	M	M	M	M	M	M	M	M	M

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : INTRODUCTION TO SETTLEMENT PLANNING
Subject Code : 7JAR5

Course Objectives:

1. To study design of settlements.
2. To understand architecture as an integrated fabric of settlement.
3. To develop an understanding of evolution of settlement planning, to study role and contribution of the planners towards contemporary town planning.

Content

Unit I Definition, planning as an architectural expression and form of developing a human settlement.

A. Definition of settlement and its hierarchy (isolated dwellings, hamlet, village, towns, city, conurbation) under following parameters:
   - Area
   - Site
   - Population
   - Functions
   - Situation
   - Shape

B. Settlement patterns
   - Linear
   - Dispersed
   - Nucleated
   - Planned

C. Function of settlement
   - Residential
   - Administrative
   - Industrial
   - Commercial
   - Services
   - Tourism

D. Ancient civilizations
   - Sumerian towns
   - Egyptian civilization
   - Greek civilization
   - Roman civilization
   - Medieval cities
   - Renaissance period
   - Indus Valley Civilization
   - Vedic / Vastu Civilization

Unit II Theories of city planning, new towns and cities.

To study the planning theories (concepts) and significantly relate them with the examples from past and present time city plans.

- Garden city concept
- Geddisain triad
- Neighborhood concept
- Radburn theory
- City beautiful
- Broad acre city
- Satellite town
- Ribbon development
- Ekistics

Unit III History of city planning. Concepts of urban space, survey, techniques, zoning and land use, neighbourhood concepts, central business district, site planning, urban and rural housing, urban transportation.

Unit IV Urban renewal and redevelopment:

Understanding the term urban renewal and Sustainable development. Study of various urban renewal programmes of JNNURM.

Unit V Present day planning in India:

Understanding the concept and formulation of a master plan document and its significance in the overall balanced development of a city/ smart city etc.

Reference Books :

1. Urban and Regional Planning by Peter Hall and Mark Tewdwr-Jones
2. Urban Planning Methods by Ian Bracken
3. Traffic Engineering and Transport Planning by L.R. Kadiyali
4. Ancient Indian Town Planning by Kaushik (Akshat)
5. Metric Handbook Planning &Design Data by Adler (David)
6. Planning & Urban Design Standards by Sendich (Emina)
7. Text book of town Planning by Bandyopadhyay
8. Town Planning by Rangwala
9. Urben Planning Guide by ASEC
10. Transport, Terminals and modal interchanges: Planning and Design by Christopher Blow
11. Town Planning regeneration of Cites by Ashutosh Joshi
12. Urban Planning and Governance by A.K. Jain
13. Sustainable Urban Planning by Joy Sen
14. Master Plan for Delhi 2021 by Vivek Kumar Garg
15. Introduction to Urban Studies by Roberta Steinbacher\
16. Representation of Places (Urban Planning) by Peter Bosselmanr
17. Revisiting Land Acquisition and Urban Process by A. K. Jain
18. Urban Planning in India by Amiya Kumar Das
19. Urban Planning Problems by Cordon E. Cherry
20. Urban Transformatioon : Transit Oriented Debeloprr by Ronald A. Altoon
21. Urbanisation in India by Isher Judge Ahluwalia
22. Planning the Twentieth-Century City by Stephen V Ward

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: To define types of settlements based on different criteria.	L1
CO2	CO2: To identify the elements of settlement.	L2
CO3	CO3: To describe the principle of a settlement pattern.	L3
CO4	CO4: To classify the constituents of town and city.	L3
CO5	CO5: To develop an understanding of evolution of settlement planning, to study role and contribution of the planners towards contemporary town planning.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	H	L	L	L	L	L	M	L	L	L	H	H	H
CO2	L2	M	M	H	H	H	L	L	L	M	M	H	H	H
CO3	L3	H	H	L	L	L	L	M	M	M	L	H	H	H
CO4	L3	M	M	M	M	M	L	L	L	L	L	M	M	M
CO5	L4	L	L	L	L	M	M	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ARCHITECTURAL DESIGN-V & FIELD TRIP
Subject Code : 7JAR6

Course Objectives:

1. Understanding building in urban context.
2. To develop design skills and creative abilities to understand and explore complex architectural relationships integrating design elements to create meaningful built spaces.
3. To develop the ability to generate design alternatives through site analysis and Site Planning
4. To understand space organisation, analysis and evaluation of design criteria and concepts for specialized buildings.
5. To integrate place making and symbolism to impart a sense of identity and image to architectural solutions
6. Role of urban design and planning principles and other factors influencing campus layout and design.

Content

Unit I

- To understand the issue of building and context, building bylaws, urban design.
- The design of building will look into aspects of commercial feasibility and building. Program; Architectural dimension with issues of services

Project : Designing a urban insert – commercial building, Institutional building with a auditorium. Public building.

Reference Books :

1. Best Design Hotels in Europe II by Kunz (Martin Ni Chalas)
2. Best Design Wellness Hotels by Kunz (Martin Ni Chalas)
3. Best Designed Hotels in Europe 1
4. Cinema Builders by Heathcote (Edwin)
5. New Hotel Architecture & Design by Collins (David)
6. Hotel Buildings: Construction and Design Manual by Manfred Ro
7. Educational Facilities by Arian Mostaedi
8. Hotel Design by Daab
9. California Aerospace Museum by Gehry (Frank)
10. Time Saver Standards for Building Types by Dechiara & Others
11. The Elements of Style by Chlloway (Stephen)
12. Time Saver Standards for Urban Design by Donald Watson
13. Design Elements: Form & Space by Dennis M. Puhalla
14. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
15. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
16. The Urban Pattern by Gallion (B)

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	**CO1**: Ability to Design, analyse and generate creative alternatives for moderately complex Architectural Design issues.	L6
CO2	**CO2**: Design a large campus for a specific purpose for a large population of multiple groups of users.	L6
CO3	**CO3**: Produce a design process and a design solution to an urban design problem.	L3,L4
CO4	**CO4**: Learning the importance of the team work and enhancement of skills in expressing, demonstrations and presentation.	L3
CO5	**CO5**: Understanding the local building bylaws and follow up in the design.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L6	H	L	H	H	H	H	H	L	L	L	M	H	H
CO2	L6	M	M	M	L	L	L	M	L	M	M	H	M	H
CO3	L3,L4	H	L	L	L	M	M	M	H	H	H	M	M	H
CO4	L3	M	M	M	M	M	M	M	M	M	M	M	H	H
CO5	L4	H	H	H	H	H	H	M	M	M	M	M	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ADVANCED BUILDING CONSTRUCTION
Subject Code : 7JAR7

Course Objectives:

1. To enhance technical skills in the field of construction technology through an understanding of specialized applications and processes.
2. Study of disaster resistant techniques.
3. Study of construction and principles of geodesic domes.

Content

Unit I Advanced Foundations–Pile and raft foundations.

Unit II Advanced methods of multistore building construction- Lift slab construction, slip form construction etc.

Unit III Space frames. Unconventional buildings like TV towers etc.

Unit IV Geodesic domes- principles and construction.

Unit V Disaster resistant construction system.

Reference Books :

1. Building Construction by Varghese
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt & Christopher Gorse
3. Handbook of Building Construction Vol-II by M M Goyal
4. Building construction illustrated by Ching
5. Building Constructions by Rangwala (S.C.)
6. Building Construction by Rangwala
7. Building Constructions Illstrated by Ching (Francis D K)
8. The Text Book of Building Construction by Bindra Arora
9. The Construction of Buildings by Barry R
10. Bulding Construction by Punmia B C
11. Bulding Construction Hand Book by Chudley & Other
12. Building Construction Vol. I-IV by Mckay W.B.
13. Carpentry and Building Construction by Feirer & Hutchings

Course Outcomes: At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: Development of construction technology and innovative techniques as tools to address demand to mass construction.	L5
CO2	CO2: Knowledge of disaster resistant construction.	L2
CO3	CO3: Knowledge of long span steel structure techniques.	L3
CO4	CO4: Application of space frame & domes	L3
CO5	CO5: use of Construction technology	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L5	H	M	M	M	M	M	M	L	L	L	M	M	M
CO2	L2	L	L	L	M	M	H	H	H	M	M	M	M	M
CO3	L3	M	M	H	H	H	L	L	H	H	H	L	M	L
CO4	L3	H	H	H	H	H	H	M	M	M	M	L	L	L
CO5	L4	M	M	M	M	M	M	M	M	M	M	L	L	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : INTRODUCTION TO SETTLEMENT PLANNING (STUDIO)
Subject Code : 7JAR8

Course Objectives:

1. To study design of settlements.
2. To develop an understanding of evolution of settlement planning, to study role and contribution of the planners towards contemporary town planning.
3. Understanding of Neighbours.

Content

Unit Designing a settlement layout showing notion of urban space, neighbourhood, typology, unit type, land use, zoning, transportation, density, etc.

Project : Neighbourhood design. Site visits of Govt. housing and private development.

Reference Books :

1. Urban and Regional Planning by Peter Hall and Mark Tewdwr-Jones
2. Urban Planning Methods by Ian Bracken
3. Traffic Engineering and Transport Planning by L.R. Kadiyali
4. Ancient Indian Town Planning by Kaushik (Akshat)
5. Metric Handbook Planning &Design Data by Adler (David)
6. Planning & Urban Design Standards by Sendich (Emina)
7. Text book of town Planning by Bandyopadhyay
8. Town Planning by Rangwala
9. Urben Planning Guide by ASEC
10. Transport, Terminals and modal interchanges: Planning and Design by Christopher Blow
11. Town Planning regeneration of Cites by Ashutosh Joshi
12. Urban Planning and Governance by A.K. Jain
13. Sustainable Urban Planning by Joy Sen
14. Master Plan for Delhi 2021 by Vivek Kumar Garg
15. Introduction to Urban Studies by Roberta Steinbacher\
16. Representation of Places (Urban Planning) by Peter Bosselmanr
17. Revisiting Land Acquisition and Urban Process by A. K. Jain
18. Urban Planning in India by Amiya Kumar Das
19. Urban Planning Problems by Cordon E. Cherry
20. Urban Transformatioon : Transit Oriented Debeloprr by Ronald A. Altoon
21. Urbanisation in India by Isher Judge Ahluwalia

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: To Distinguish between different settlements, concepts of planning and techniques of survey.	L2
CO2	CO2: Review the condition of development of urbanization.	L6
CO3	CO3: To re-create a theme-based settlement pattern.	L6
CO4	CO4: To develop a local area plan.	L5
CO5	CO5: To understand the neighbouring settlement plans.	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	H	H	H	H	H	H	H	H	H	M	M	M
CO2	L6	L	H	H	H	H	H	H	M	M	M	H	M	H
CO3	L6	H	H	H	H	H	M	M	M	M	L	H	M	M
CO4	L5	M	M	M	-	H	H	-	-	-	H	M	H	H
CO5	L4	H	H	H	H	M	M	M	M	M	M	H	M	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : DISSERTATION
Subject Code : 7JAR9

Course Objectives:

1. Acquire a strong theoretical foundation, clarity of thought and also to orient the
2. students to structured research in a focused manner.
3. Develop research capabilities and individual scholarly attitude.
4. Develop analytical, synthesizing and interpretive skills and be able to present the
5. same in standardized and systematic academic formats.

Content

Unit Each Students may choose a topic related to architecture and allied subjects with emphasis on critical understanding, logical reasoning and structured writing. Students may be encouraged to select the topic which may eventually culminate in the Thesis. Students can thus utilize this as an opportunity for pre-thesis study, amounting to literature review and relevant case studies which are otherwise required for Thesis.

Reference Books : Architecture dissertation manual, Climate responsive architecture

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: Systematically abstract, analyse, synthesize and interpret existing literature.	L2
CO2	CO2: Develops a specialized knowledge in a subject area which maybe an extension to the prescribed coursework.	L3
CO3	CO3: Builds his his/her capacity to work independently and methodically in a variety of intellectually demanding contexts.	L3,L4
CO4	CO4: Learn to explain various aspects	L3
CO5	CO5: Analyze the information with the help of literature and surveys	L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L2	H	H	H	H	H	H	H	H	H	H	H	H	H
CO2	L3	H	H	H	H	H	H	H	H	H	H	H	H	H
CO3	L3,L4	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L3	M	M	M	M	L	L	L	L	L	L	H	H	H
CO5	L4	L	L	M	M	M	M	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE - ALTERNATE ENERGY SYSTEM IN ARCHITECTURE
Subject Code : 7JAR10.1

Course Objectives:

1. To understand other related dimensions of Architecture.
2. To create awareness for the conservation of energy consumption and basic knowledge of creating environment friendly and energy-efficient architecture.
3. To introduce the concept of energy efficiency and green building design.
4. To introduce the Energy Conservation Building Code (Building Envelope) to the students.

Content

Unit I

- Introduction;
- Present Scenario in India,
- Hydel Energy,
- Solar Energy,
- Wind Energy,
- Sustainable Architecture:
  a) Introduction
  b) Present Scenario
  c) Relevance in Indian Context
- Tidal Energy / Biogas,
  Geothermal Energy,

Unit II Green Building Concepts / Role of IGBC

Unit III Active & Passive Means of Cooling

Unit IV

- Sources of Energy:
- Renewable
- Non-Renewable

Unit V

- Energy Audit
- Energy Consumption

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: Development of energy conscious architectural design, strategies and built forms.	L3
CO2	CO2: Futuristic vision of urban habitat.	L2
CO3	CO3: Understanding of the concept of green building design.	L3
CO4	CO4: Learn passive methods	L2
CO5	CO5: Use of resources	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L3	M	M	M	M	M	H	H	H	H	H	M	M	M
CO2	L2	L	L	L	L	L	H	H	H	H	H	L	L	M
CO3	L3	H	H	H	H	M	M	M	M	L	L	L	M	M
CO4	L2	H	M	M	M	M	M	M	M	M	H	L	M	M
CO5	L2	H	H	H	H	H	M	M	M	M	M	L	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE- VERNACULAR ARCHITECTURE
Subject Code : 7JAR10.2

Course Objectives:

1. To introduce the study of vernacular architecture as a process and not a product.
2. An exposure to the traditional architecture in various parts of the India with respect to the planning aspects, materials used in construction, constructional details and settlement planning.
3. To understand vernacular architecture as diverse from other historical & contemporary styles of architecture to understand that it is site responsive and an outcome of native techniques and various social, economic and mythical values of the society.

Content

Unit I **Introduction to Vernacular Architecture**

- Approaches and concepts to the study of Vernacular architecture – Introduction to Kutcha architecture and Pucca architecture

  Introduction to Vernacular architecture it's nature, purpose and scope. Study of examples of Vernacular architecture in history of architecture (inside Indian subcontinent) to understand evolution of building forms based on functions, building materials and construction techniques, art & crafts, the local conditions, traditions, climate &geography, religion & culture in the period when they were built

Unit II **Dravidian South**

Planning aspects, materials of construction, Constructional details & Settlement Planning of :

- Kerala – Nair houses (Tarawads), Kerala Muslim houses(Mappilah houses), Temples, Palaces and theaters – Thattchushastra.
- TamilNadu – Toda Huts, Chettinad Houses (Chettiars) & Palaces
- Karnataka – Gutthu houses (land owning community), Kodava ancestral home (Aynmane)
- Andhra Pradesh –Kaccha buildings Religious practices, beliefs, culture & climatic factors influencing the planning of the above.

Unit III **Western Region**

Planning aspects , Materials used, Constructional details, Climatic factors influencing the planning of

- Jat houses for farming caste, Bhungas(Circular Huts) and Havelis(Pukka houses) of Rajasthan
- Pol houses of Ahmedabad - Primitive forms, Symbolism, Colour, Folk art etc in the architecture of the deserts of Kutch & Gujarat state.
- Vernacular architecture of Goa.

Unit IV **Thern and Eastern India**

Kashmir – Typical Kutcha houses, mosque, Dhoongas(Boathouses), Ladakhi houses, bridges

- Himachal Pradesh – Kinnaur houses

- Uttar Pradesh – Domestic housing of Uttar Pradesh

Bengal – Bangla (Rural house form), Aat Chala houses – change from Bangla to Bungalow, Kutcha & Pucca architecture of Bengal. Nagaland – Naga houses & Naga village, Khasi houses Factors influencing the planning aspects, materials of construction & constructional details of the above.

Unit V Case study/ies of works of architects in contemporary Indian architecture; whose works are influenced by the Vernacular Architecture of the region

Reference Books :

1. Architecture of the Indian desert , Kulbushan Jain & Meenakshi Jain, Aadi Centre, Ahmedabad
2. The Royal Palaces of India , George Michell, Thames and Hudson Ltd., London
3. Chettiar Heritage, S.Muthiah, Meenakshi Meyappan, Visalakshmi RAMASWAMY, Lokavani-Hallmark Press Pvt. Ltd., Chennai
4. Encyclopaedia of Vernacular architecture of the World, Cambridge University Press
5. Havali – Wooden houses & mansions of Gujarat, V.S.Pramar, Mapin Publishing Pvt. Ltd., Ahmedabad
6. The Tradition of Indian architecture – Continuity & Controversy – Change since 1850, H.R.Tillotsum, Oxford University Press, Delhi
7. VISTARA – The architecture of India , Carmen Kagal. Pub: The Festival of India, 1986.
8. House, Form & Culture , Amos Rappoport, Prentice Hall Inc, 1969.
9. Traditional buildings of India , Ilay Cooper, Thames and Hudson Ltd., Londo.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	CO1: Development of significant contribution of vernacular architecture of place in fabric of that city or region.	L1
CO2	CO2: Understanding of Principles of design in Vernacular architecture	L2
CO3	CO3: Understanding of vernacular and tradition architecture.	L3
CO4	CO4: Uses of natural resources	L3
CO5	CO5: Application of local material with climate responsive	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	M	M	M	M	M	H	H	H	H	H	M	L	H
CO2	L2	L	L	M	M	M	M	M	M	M	M	M	L	H
CO3	L3	M	M	M	M	M	M	H	H	H	L	M	L	H
CO4	L3	H	H	H	H	H	H	H	M	M	M	M	L	H
CO5	L3	M	M	M	M	M	M	M	M	M	M	M	L	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : Professional Skills
Subject Code : 7JAR11

Objectives:

1. To acquire career skills and fully pursue to partake in a successful career path
2. To prepare good resume, prepare for interviews and group discussions
3. To explore desired career opportunities in the employment market in consideration of an individual SWOT.
4. Understand the significance of Team Skills and help them in acquiring them
5. To help them design, develop and adapt to situations as an individual and as a team.

Course Contents

Unit I: Resume Skills & Interview Skills

Resume Skills : Preparation and Presentation, Introduction of resume and its importance, Difference between a CV, Resume and Bio data, Essential components of a good resume, Resume skills : common errors, Common errors people generally make in preparing their resume, Prepare a good resume of her/his considering all essential components
Interview Skills : Preparation and Presentation, Meaning and types of interview (F2F, telephonic, video, etc.), Dress Code, Background Research, Do's and Don'ts, Situation, Task, Approach and Response (STAR Approach) for facing an interview, Interview procedure (opening, listening skills, closure, etc.), Important questions generally asked in a job interview (open and closed ended questions), Interview Skills : Simulation, Observation of exemplary interviews, Comment critically on simulated interviews, Interview Skills : Common Errors, Discuss the common errors generally candidates make in interview, Demonstrate an ideal interview

Unit II: Group Discussion Skills & Exploring career opportunities

Meaning and methods of Group Discussion, Procedure of Group Discussion, Group Discussion- Simulation, Group Discussion - Common Errors, Knowing yourself – personal characteristics
Knowledge about the world of work, requirements of jobs including self-employment, Sources of career information, Preparing for a career based on their potentials and availability of opportunities

Unit III: Presentation Skills, Trust and Collaboration

Types of presentations, Internal and external presentation, Knowing the purpose, Knowing the audience, Opening and closing a presentation, Using presentation tools, Handling questions, Presentation to heterogenic group, Ways to improve presentation skills over time, Explain the importance of trust in creating a collaborative team, Agree to Disagree and Disagree to Agree – Spirit of Team work, Understanding fear of being judged and strategies to overcome fear

Unit IV: Listening as a Team Skill & Brainstorming

Advantages of Effective Listening, Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no prethink, use empathy, listen to tone and voice modulation, recapitulate points, etc.)., Use of group and individual brainstorming techniques to promote idea

generation., Learning and showcasing the principles of documentation of team session outcomes

Unit V: Social and Cultural Etiquette & Internal Communication 4 Hours

Need for etiquette (impression, image, earn respect, appreciation, etc), Aspects of social and cultural/corporate etiquette in promoting teamwork, Importance of time, place, propriety and adaptability to diverse cultures, Use of various channels of transmitting information including digital and physical, to team members.

Reference Books :

1. Best Design Hotels in Europe II by Kunz (Martin Ni Chalas)
2. Best Design Wellness Hotels by Kunz (Martin Ni Chalas)
3. Best Designed Hotels in Europe 1
4. Cinema Builders by Heathcote (Edwin)
5. New Hotel Architecture & Design by Collins (David)
6. Hotel Buildings: Construction and Design Manual by Manfred Ro
7. Educational Facilities by Arian Mostaedi
8. Hotel Design by Daab
9. California Aerospace Museum by Gehry (Frank)
10. Time Saver Standards for Building Types by Dechiara & Others
11. The Elements of Style by Chlloway (Stephen)
12. Time Saver Standards for Urban Design by Donald Watson
13. Design Elements: Form & Space by Dennis M. Puhalla
14. Time saver standards for Landscape Architecture (II edition) by Charles W. Harris & Micholas T. Dines
15. The City Shaped - Urban Patterns and Meanings Through History by Spiro Kostof
16. The Urban Pattern by Gallion (B)
17. https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/fsit/
18. https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/
19. https://www.sscnasscom.com/ssc-projects/capacity-building-anddevelopment/training/gbfs/)
20. Generic and the entrepreneurial NOS at NSQF Level 4 -7.

Course Outcomes:

CO	Statement	Blooms Level
	After the completion of this course, students will be able to:	
CO1	Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax and Participate in a simulated interviev	L6
CO2	Actively participate in group discussions towards gainful employment, Capture a self - interview simulation video regarding the job role concerned and Enlist the common errors generally made by candidates in an interview	L3
CO3	Perform appropriately and effectively in group discussions and Explore sources (online/offline) of career opportunities	L3
CO4	Use common technology messaging tools that are used in enterprises for flo of information and transition from command and control to informal communication during an online/offline team session & Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc	L3
CO5	Appreciate and demonstrate Team Skills & Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Industrial visit

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Levels	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2
CO1	L6	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**L**	**L**
CO2	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**L**	**L**
CO3	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**L**	**M**
CO4	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**L**	**M**
CO5	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**L**	**M**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars	CO3, CO4
CD4	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5
CD5	Industrial visit	CO3, CO4, CO5

Subject Name : AANANDAM
Subject Code : 7JAR12

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

M. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

N. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 7JAR13 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:

At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

Semester - VIII

S. No.	Code	Subjects	Type	Total Marks.	CREDITS
1	**8JAR1**	**Practical: Training & its presentation / seminar**	**SEC**	**300**	**6**
		i) Monthly work reports from architects' office			
		ii) Critical appraisal of built projects			
		iii) field documentation of architectural details			
		iv) site supervision of built projects			
		v) Training reports			

Sr. No.	Code No.	Subjects	Internal Marks	External Marks	Type	Total Marks	L	S	Credits
2	8JAR2	AANANDAM	50	50	AECC	100	-	2	2
3	8JAR3	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non- Credit
		GRAND TOTAL	**50**	**50**	**-**	**400**	-	2	**8**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : PRACTICAL TRAINING
Subject Code : 8JAR1

Course Objectives:

1. The objective is to give a professional exposure to the students and an opportunity to learn in a professional environment.
2. Introduced to fundamental processes of designing of real buildings on real sites.
3. Develops confidence in interacting with various key players in building design and construction processes.
4. Develop an understanding of contemporary issues and techniques of building construction.

Content

Unit I Student shall work for a period of 280 days in an office of Architect approved by the department. She/he shall be submitting monthly work report, critical appraisal of built projects. Field documentation of architectural details and site supervision of built projects.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	The student gets a real-time exposure of how architectural projects are carried out.	L3, L4, L5
CO2	Office management and team-work to enhance the employability of the student.	L3, L4, L6
CO3	To acquaint students with their roles and responsibilities of dealing with various related agencies and the freedom/ limitations as a professional as well as their real status in the society.	L4
CO4	To be aware of or sensitive to the existence of certain ideas, material, or phenomena and being willing to tolerate them	L2, L4
CO5	To understand and apply the professional aspects of an architecture office/company and the multiple issues in conception, preparation and execution of project on a site.	L2
CO6	To be able to set practises to act consistently in accordance with the val he or she has internalized.	L2, L4, L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L3, L4, L5	H	H	H	H	H	H	H	H	H	H	H	H	H
CO2	L3, L4, L6	H	H	H	H	H	H	H	H	H	H	H	H	H
CO3	L4	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L2, L4	M	M	M	M	M	M	H	H	H	H	H	H	H
CO5	L2	H	H	H	H	H	H	H	H	H	H	H	H	H
CO6	L2, L4, L6	M	M	M	M	M	M	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO3, CO4
CD2	Tutorials/Assignments	CO1, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5, CO6
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5, CO6
CD5	Self- learning advice using internets	CO1,CO2,CO3, CO4, CO5, CO6

Subject Name : AANANDAM
Subject Code : 8JAR2

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

O. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

P. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Semester - IX

S. No.	Code	Subjects	Type	Total Marks.	CREDITS
1	**9JAR1**	**Practical: Training & its presentation / seminar**	**SEC**	**300**	**6**
		i) Monthly work reports from architects' office			
		ii) Critical appraisal of built projects			
		iii) field documentation of architectural details			
		iv) site supervision of built projects			
		v) Training reports			

Sr. No.	Code No.	Subjects	Internal Marks	External Marks	Type	Total Marks	L	S	Credits
2	9JAR2	AANANDAM	50	50	AECC	100	-	2	2
3	9JAR3	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		GRAND TOTAL	**50**	**50**	**-**	**400**	-	2	**8**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : PRACTICAL TRAINING
Subject Code : 9JAR1

Course Objectives:

1. The objective is to give a professional exposure to the students and an opportunity to learn in a professional environment.
2. Introduced to fundamental processes of designing of real buildings on real sites.
3. Develops confidence in interacting with various key players in building design and construction processes.
4. Develop an understanding of contemporary issues and techniques of building construction.

Content

Unit I Student shall work for a period of 280 days in an office of Architect approved by the department. She/he shall be submitting monthly work report, critical appraisal of built projects. Field documentation of architectural details and site supervision of built projects.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	The student gets a real-time exposure of how architectural projects are carried out.	L3, L4, L5
CO2	Office management and team-work to enhance the employability of the student.	L3, L4, L6
CO3	To acquaint students with their roles and responsibilities of dealing with various related agencies and the freedom/ limitations as a professional as well as their real status in the society.	L4
CO4	To be aware of or sensitive to the existence of certain ideas, material, or phenomena and being willing to tolerate them	L2, L4
CO5	To understand and apply the professional aspects of an architecture office/company and the multiple issues in conception, preparation and execution of project on a site.	L2
CO6	To be able to set practises to act consistently in accordance with the val he or she has internalized.	L2, L4, L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L3, L4, L5	H	H	H	H	H	H	H	H	H	H	H	H	H
CO2	L3, L4, L6	H	H	H	H	H	H	H	H	H	H	H	H	H
CO3	L4	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L2, L4	M	M	M	M	M	M	H	H	H	H	H	H	H
CO5	L2	H	H	H	H	H	H	H	H	H	H	H	H	H
CO6	L2, L4, L6	M	M	M	M	M	M	H	H	H	H	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO3, CO4
CD2	Tutorials/Assignments	CO1, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5, CO6
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5, CO6
CD5	Self- learning advice using internets	CO1,CO2,CO3, CO4, CO5, CO6

Subject Name : AANANDAM
Subject Code : 9JAR2

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

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- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

Q. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

R. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Semester - X

Theory

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	T	Credits
1	10JAR1	Leadership& Management Skills	CORE	30	70	100	1	1	2
2	10JAR2	Housing	CORE	30	70	100	2	1	3
		SUB TOTAL		**60**	**140**	**200**	**3**	**2**	**5**

SESSIONALS

S. No.	Code	Subjects	Type	Internal Marks	External Marks	Total Marks	L	S	Credits
3	10JAR3	Elective 10JAR3.1 Urban Conservation 10JAR3.2 Urban Design	DSE	60	40	100	2	1	3
4	10JAR4	Elective 10JAR4.1 Disaster Resistant structure 10JAR4.2 Architecture Development and legislation	DSE DSE	60	40	100	2	2	4
5	10JAR5	Advanced Study of thesis topic	AECC	60	40	100	2	1	3
6	10JAR6	Thesis project	AECC	300	200	500	-	6	6
7	10JAR7	Universal Human Value	SEC	60	40	100	1	1	2
8	10JAR8	AANANDAM	AECC	50	50	100	1	1	2
9	10JAR9	Discipline & Extra Curricular Activities	-	-	-	-	_	_	Non-Credit
		SUB TOTAL		**590**	**410**	**1000**	**8**	**11**	**20**
		GRAND TOTAL		**650**	**550**	**1200**	**11**	**13**	**25**

* 45% marks in Internal & External separately in individual papers and 50% marks in semester aggregate.

Subject Name : LEADERSHIP & MANAGEMENT SKILLS
Subject Code : 10JAR1

Course Objectives:

1. The study of this subject is to acquaint the students, while giving basic information about various aspects of the profession, conduct and responsibilities and procedures of Architectural profession.
2. The architectural profession and its regulatory and statutory bodies.
3. Develop an understanding of legal liabilities and obligations as an architect and the importance of code of conduct and ethics in professional practice.
4. To help students to develop essential skills to influence and motivate others
5. To inculcate emotional and social intelligence and integrative thinking for effective leadership
6. To create and maintain an effective and motivated team to work for the society
7. To nurture a creative and entrepreneurial mindset
8. To make students understand the personal values and apply ethical principles in professional and social contexts.

Content: Leaders are foundations of the society, who face and win against adversities and odds of life. Through their words and deeds, they show path to others and transform into inspirational role models, affecting social life vividly. In the current times of cut-throat competitions, disbelief in values, techno-centric complex lifestyles, there is a dire need to emphasise the 'human' agency in community living. This can be done by cultivating and nurturing the innate leadership skills of the youth so that they may transform these challenges into opportunities and become torch bearers of the future by developing creative solutions.

Unit I The architect and his office, relationship with clients, consultants, contractors. Legal responsibilities of architects, code of professional practice, fees, architectural competitions and architects registration act 1972.

- Code of professional conduct.
- Condition of engagement and scale of professional fees.
- Copyright Act as applicable to architectural work.
- Architectural competitions.
- Concept of Contract.
- Duties and liabilities of architects, duties and liabilities of contractors.
- Articles of agreement, execution of works and payments.
- Laws pertaining to property matters like Right of easements, passage, ancient light etc.

Leadership Skills

- Understanding Leadership and its Importance
    - What is leadership?
    - Why Leadership required?
    - Whom do you consider as an ideal leader?
- Traits and Models of Leadership
    - Are leaders born or made?
    - Key characteristics of an effective leader

- Leadership styles
- Perspectives of different leaders

- Basic Leadership Skills
  - Motivation
  - Team work
  - Negotiation
  - Networking

Unit II

- Tender and tendering procedures, principle of contact and agreements. Control of constructional operations.

Managerial Skills:

- Basic Managerial Skills
  - Planning for effective management
  - How to organise teams?
  - Recruiting and retaining talent
  - Delegation of tasks
  - Learn to coordinate
  - Conflict management
- Self Management Skills
  - Understanding self concept
  - Developing self-awareness
  - Self-examination
  - Self-regulation

Unit III

- Arbitration and its proceedings and awards. Introduction to principles of business management project programming and monitoring.

Entrepreneurial Skills:

- Basics of Entrepreneurship
  - Meaning of entrepreneurship
  - Classification and types of entrepreneurship
  - Traits and competencies of entrepreneur
- Creating Business Plan
  - Problem identification and idea generation
  - Idea validation
  - Pitch making

Unit IV

- PERT and CPM network and their analysis Human relation and personnel management.

Innovative Leadership and Design Thinking :

- Innovative Leadership
  - Concept of emotional and social intelligence
  - Synthesis of human and artificial intelligence
  - Why does culture matter for today's global leaders
- Design Thinking

- What is design thinking?
- Key elements of design thinking:
  - Discovery
  - Interpretation
  - Ideation- Experimentation - Evolution.
- How to transform challenges into opportunities?
- How to develop human-centric solutions for creating social goo

Unit V

- Brief Idea about accounting and book keeping, business correspondence, information storage and retrieval systems.

Ethics and Integrity :

- Learning through Biographies
  - What makes an individual great?
  - Understanding the persona of a leader for deriving holi inspiration
  - Drawing insights for leadership
  - How leaders sail through difficult situations?
- Ethics and Conduct
  - Importance of ethics
  - Ethical decision making
  - Personal and professional moral codes of conduct
  - Creating a harmonious life

Reference Books :

1. Professional Practice by Dr. Roshan H. Namavati
2. Urban and Regional Planning in India: A Handbook for Professional Practice by S.K. Kulshrestha
3. Quality Management in Cement Con. by Gahlot
4. Compendium of J.D.A. and Allied Laws (Vol. I&II) by Man Singh Gupta
5. Compendium of Municipalities and Allied Laws (Vol. –I) Man Singh Gupta
6. Building Codes Illustrated for Healthcare Facilities by Steven R. Winkel.
7. Ashokan, M. S. (2015). *Karmayogi: A Bbiography of E. Sreedharan*. Penguin, UK.
8. Brown, T. (2012). *Change by Design.* Harper Business
9. Kalam A. A. (2003). *Ignited Minds: Unleashing the Power within India*. Penguin Books India
10. Kelly T., Kelly D. (2014). *Creative Confidence: Unleashing the Creative Potential Within Us All.* William Collins
11. McCormack M. H. (1986).*What They Don't Teach You at Harvard Business School: Notes From A Street-Smart Executive*. RHUS
12. Sternberg R. J., Sternberg R. J., & Baltes P. B. (Eds.). (2004). *International Handbook of Intelligence*. Cambridge University Press.
13. E-Resources
14. India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta - https://www.ted.com/ talks/anil_gupta_india_s_hidden_hotbeds_of_invention
15. Knowledge@Wharton Interviews Former Indian President APJ Abdul Kalam - . "A Leader Should Know How to Manage Failure" https://www.youtube.com/ watch?v=laGZaS4sdeU
16. NPTEL Course on Leadership - https://nptel.ac.in/courses/122105021/9

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	The study of this subject is to acquaint the students, while giving basic information about various aspects of the profession, conduct and responsibilities and procedures of Architectural profession.	L1
CO2	To learn about architectural profession and its regulatory and statutory bodies.	L3
CO3	To help students to develop essential skills to influence and motivate others	L4
CO4	To inculcate emotional and social intelligence and integrative thinking for effective leadership.	L2
CO5	To nurture a creative and entrepreneurial mindset and to make students understand the personal values and apply ethical principles in professional and social Context.	L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcomes	Blooms Level	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1	L	M	H	M	M	M	L	H	H	H	M	M	H
CO2	L3	M	M	H	M	M	H	L	M	M	M	M	M	M
CO3	L4	M	M	H	M	M	M	L	H	H	L	H	H	M
CO4	L2	L	M	H	H	M	M	L	H	H	H	H	M	H
CO5	L6	M	M	H	H	M	H	L	M	M	M	H	H	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : HOUSING
Subject Code : 10JAR2

Course Objectives:

1. Understanding housing as a major element of architecture.
2. To create awareness about the causes of housing problems and to Understand the various issues involved in urban housing and have a knowledge about the planning and design solutions for low income groups.
3. To create awareness about importance of housing in Indian context and to impart knowledge for designing housing projects
4. To sensitise students about various issues of housing pertaining to affordability, neighbourhood planning and design, etc.

Content

Unit I Housing system – housing need and options available, National Housing policy, Housing Agencies and their contribution to housing development. Housing finance. Social factors influencing design, affordability, economic factors and housing concepts/ technologies.

Unit II **Housing scenario:**

- Housing scenario in Indian context, Housing shortage in urban and rural areas.
- Slum up-gradation, Slums and squatters, Informal housing.
- Affordable housing, Core housing, Community housing, Industrial housing.
- Low-rise high density, High-rise low density, High-rise high density housing
- Site and Services,
- Housing Surveys and
- Neighborhood Analysis.

Unit III

- Different type of housing and housing standards, methodology of formulation standards, relevance of standard in housing development, services, efficiency and user satisfaction.

Unit IV

- Housing design process – different stages in project development – layout design including utilities and common facilities, design as a result of bye-laws.

Unit V **Housing Policies**

- Framing housing policy for a proposed scheme with consideration to nature of development.
- National and State Housing policies.
- Systems approach to housing.
- Environmental consideration, housing for disaster prone areas.

Housing finance:

- Role of financial institutions
- Co-operative housing schemes
- Gramin Bank Model
- Government measures for slum up-gradation and rehabilitation.

Reference Books :

1. Richard Kintermann and Robert small site planning for cluster Housing van nastrand reinhold company, Jondon/New York 1977.
2. Joseph de Chiara and others – Time saver standards for Housing and Residential development, Mcgraw Hill Co, New York 1995.
3. Forbes Davidson and Geoff Payne, Urban projects Manual. Liverpool University press, Liverpool 1983.
4. Christopher Alexander, A pattern Language, Oxford University press, New York 1977
5. HUDCO publications – Housing for low income, sector model.
6. Time Server Standards for Housing by Chiara Joseph De
7. Urban Housing Forms by Zhou (Jingmin)
8. The Housing Design Handbook a Guide to Goop Practice by Levitt
9. Residental Housing by Clois E. Kicklighter & Joan C. Kicklighter
10. Front to Back: A Design Agenda for Urban Housing by Sally Lewis
11. New Urban Housing by Hilary French
12. Modern Urban Housing in China: 1840-2000 by Lu Junhua

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To define basic elements of housing, neighbourhood, community, slums and real estate market.	L1
CO2	To outline various housing policies and programmes.	L3
CO3	To explain inter relationships between hierarchy of human needs and housing typologies.	L4
CO4	To Understand the various issues involved in urban housing and have a knowledge about the planning and design solutions for low income groups	L2
CO5	To create awareness about importance of housing in Indian context and to impart knowledge for designing housing projects	L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1	L	M	M	M	M	M	M	H	H	H	H	H	H
CO2	L3	H	H	H	H	M	M	M	L	L	L	H	L	M
CO3	L4	M	M	M	M	M	M	H	H	H	L	M	M	M
CO4	L2	-	--	L	M	M	M	M	M	H	H	L	L	M
CO5	L6	M	M	M	M	M	H	-	-	-	H	L	L	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE - URBAN CONSERVATION
Subject Code : 10JAR3.1

Course Objectives:

1. To understand the significance of built heritage as a resource
2. To identify causes of deterioration and suggest remedial measures
3. To develop an understanding in heritage, its value and the theory and practice of architectural conservation and history of conservation in India and West.

Course Outcomes:

Content

Unit I Introduction to Conservation

- Definitions: Conservation, Heritage and types of heritage, Degrees/ philosophies of conservation (preservation, restoration, rehabilitation, replication, relocation, adaptive reuse, maintenance), urban redevelopment, urban renewal, etc.
- Ethics and principles of building conservation
- Process/ procedures of building conservation

Unit II Approaches to Conservation

- Occidental and Oriental Approach
- Development of Heritage Conservation in India
- Approach towards formulation of an Indian Charter

Unit III Concepts of Historic Zones

- Introduction: definitions, characteristics and significances of historic zones
- Challenges to revitalization of historic zones
- Needs of Urban regeneration
- Involvement and roles of stakeholders (community, development authorities, municipal corporations, local/ community leaders, etc.)
- Approach to regeneration of historic zones

Unit IV World Heritage Sites

- What are World Heritage Sites (WHS)?
- World Heritage Mission and Structure
- Concepts of assessment
- International initiatives for Heritage Conservation

Unit V Charters

- Introduction to charters: definition, philosophies and need
- Charters: SPAB Manifesto, Athens Charter, Venice Charter, European charter for Architectural heritage, Florence Charter, Washington Charter, Nara Document on Authenticity, Burra Charter, International Cultural Tourism Charter, INTACH Charter, ICOMOS Declaration on Heritage and Metropolis in Asia and the Pacific

Legislation and Framework for Conservation in India

- **Introduction to Heritage Tourism in India**

At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To understand the significance of built heritage as a resource	L2
CO2	To identify causes of deterioration of built heritage and find out the measures to restore them.	L2, L3
CO3	To understand the difference and significance of tangible and intangible heritage.	L2
CO4	To learn about WHS. And understand the charters of Asian countries.	L3, L4
CO5	To understand the charters of Asian countries.	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L2	H	H	H	M	M	M	M	M	M	L	M	L	L
CO2	L2, L3	L	L	M	M	M	M	M	H	H	H	L	H	L
CO3	L2	H	H	H	H	H	H	H	H	H	H	L	M	H
CO4	L3, L4	M	M	M	L	L	L	L	L	L	M	H	H	H
CO5	L2	L	L	M	M	M	M	M	M	M	M	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE - URBAN DESIGN
Subject Code : 10JAR3.2

Course Objectives:

1. To understand the scope and nature of urban design as a discipline.
2. To introduce the components of a city and their interdependent roles, evolution of historic urban form and interpret the city in different ways and layers.
3. To provide a structured understanding of the forces that shape and develop cities, as also to develop a common vocabulary and set of concepts with which to map, analyse, understand and explain the form, structure and development of the city.

Content

Unit I **Introduction to the role and scope of Urban Design:**

- Introduction: Relationship with architecture and Town Planning.
- Determinants and factors of urban forms such as landform, climate, symbolism, activity patterns, socio-cultural factors, materials, techniques and other contextual factors. Case examples from various periods in history and different parts of the world.
- Understanding of differentiation of Architecture, Urban design & planning.
- Meaning, scope and purpose of Urban design.
- Understanding the Heritage of Urban Design and roots of our Modern Concepts.
- Study of built fabric and its relationship with land form and nature

Unit II **Vocabulary of Urban Design**

- Principles of Urban design and Making a Visual survey
- Urban Pattern
- Grain
- Fabric
- Texture
- Density

Unit III **Urban Spaces**

A. Streetscape Elements

- Continuous Streetscape;
- Connected Sidewalks;
- Prominent Gateways;
- Focus Areas;
- Key Building Frontages;
- Key Corner Sites;
- Key Vistas;
- Public Art;
- Off-Street Parking; and,
- Attractive Signage.

B. Open Space Elements

- Potential squares;
- Landscaped buffers.

C. Connections

- Pedestrian Routes (including crosswalks and mid-block connectors);
- Shared Facilities; and,

- Public Transit.

D. Green Technologies

- Pervious Pavement;
- Rain Gardens and Passive Irrigation;
- Building Materials; and,
- Green Roof and High-albedo/Light-coloured roofing materials.

E. Image of a city (Concepts of image ability, elements of the city image)

- Nodes
- Landmarks
- Edges
- Districts
- Path
- Local points
- Their characteristics,
- Role and inter relationship visual survey

Unit IV

- Introduction to analytical techniques in urban design.
- Survey techniques in urban design.
- Urban design regulations and controls.

A. Scale in urban design

- Scale and human vision
- Scale and circulation
- Scale in Neighboring Building and Spaces
- Scale and Neighborhood size
- Scale and Parameters
- Scale: Time, Convenience, Age and Habit

B. Urban Space

C. Urban Mass

D. Urban Activity and Circulation

- The open space technique
- The transportation system technique
- The capital network technique
- The plug-in technique
- The individual building

Urban Aesthetics

- Beauty in cities
- Relationship between site and city
- Designing parts of the city.

Unit V **Comprehensive role of urban design in planning process**

- Urban design on a national and regional scale
- Urban design at the metropolitan scale
- Urban design at the scale of a city

Reference Books :

1. The architecture of towns and cities by Paul D Spreiregen
2. Illustrated urban design Guidelines.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To understand the general morphology of urban space.	L1, L2
CO2	Be able to interpret the urban forms of the past and present.	L2
CO3	Demonstrate an understanding of the various bio-physical, historical, political-economic, and social-cultural layers of the city, and work with these to form a consciously designed intervention.	L1, L3
CO4	Synthesise general theoretical models, analytical approaches to urban issues and contexts, technical knowledges, stakeholder interests and ethical frameworks, and individual vision into an integrated urban design proposition	L3
CO5	Articulate their stance and position as a designer within discourses of urbanism.	L4
CO6	Research and analyse information relevant to developing urban design interventions and propositions.	L4
CO7	Demonstrate high quality communication, representation and visual skills appropriate to urban design projects, including written, verbal, graphical and model-based presentation	L4
CO8	Demonstrate abilities in teamwork and time management for group and individual work.	L3, L4

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
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CO1	L1, L2	H	H	H	H	M	M	M	M	L	L	H	H	M
CO2	L2	L	L	L	L	M	M	M	M	M	M	H	H	M
CO3	L1, L3	H	H	M	M	-	M	-	-	-	-	H	H	M
CO4	L3	-	-	L	L	L	L	L	L	H	H	H	M	M
CO5	L4	H	H	L	H	M	M	M	L	L	L	H	M	H
CO6	L4	M	M	M	M	M	M	M	M	H	H	H	M	H
CO7	L4	L	L	L	L	M	M	M	M	H	H	H	M	H
CO8	L3, L4	M	H	H	L	L	M	M	M	M	M	H	M	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO4,CO5,CO6,CO7,CO8
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8

Subject Name : ELECTIVE - DISASTER RESISTANT STRUCTURES
Subject Code : 10JAR4.1

Course Objectives:

1. To create awareness about natural disasters, reasons of their occurrence and have basic
2. knowledge of disaster management, mitigation and techniques for post disaster monitoring and design.
3. Awareness for Disaster Management issues in relevance of Architecture & surrounding built environment.

Content

Unit I **Introduction:**

- Types of disaster, meanings and related definitions.
- Principles of Disaster Management, Hazards, Risks and Vulnerabilities.
- Assessment of Disaster Vulnerability of a location and vulnerable groups.
- Causes and effects of natural hazards.
- Disaster profile of India.
- Building safety form natural hazards, introduction, earthquake, five safety in buildings, cyclone effects, high winds, storm surge, cyclone safety aspects in buildings, floods, landslides, disaster resistant structures

Unit II

- Elementary seismology, causes of earthquake, seismic waves, magnitude, intensity, seismological instruments, earthquake zones

Unit III

- Earthquake resistant structures, engineered and non-engineered buildings, architectural aspects – forms and shape, construction techniques for disaster resistant structures, innovative new materials.

Unit IV

- Structural detailing, IS code provisions for the buildings IS:1893 and IS:4326, effect on tall buildings and IS:13828
- Seismic designs and detailing of RC and steel building: IS:13920, IS:456, IS:800 and national building code, general provisions; seismic design principles

Unit V

- Seismic vulnerability evaluation of existing buildings, study of cracks, repair and rehabilitation of buildings. Seismic strengthening, retrofitting, pase isolators, jacketing, masonry and concrete structures, few case studies of buildings after disaster and restoration, load bearing and R.C. fraened building.

Reference Books :

1. Earthquack Risk Reduction by Dowrick (David)
2. Earthquake Protection by Coburn (Andrew)& Other
3. Earthquake Design Proticetor Building by Booth (Edmund)
4. Earthquake Resistant Des. Of Structures by Agarwal
5. Earthquake Resistant Desing Of Structure by Duggal

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To learn different types of disasters and understand the disaster profile of India.	L1
CO2	To create awareness about natural disasters and reasons of their occurrence.	L3
CO3	To learn the construction techniques for disaster resistant structures.	L1, L2
CO4	To learn the methods of rebuilding the structures with less resources and disaster management.	L2, L3
CO5	To have knowledge about different IS codes related to disaster resistant structures.	L2

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1	H	H	M	M	M	M	M	H	H	H	M	M	M
CO2	L3	H	H	M	M	M	M	M	H	H	H	M	M	H
CO3	L1, L2	H	H	H	M	M	M	M	M	M	H	M	M	H
CO4	L2, L3	H	-	-	H	H	M	M	M	M	-	H	H	H
CO5	L2	H	M	M	M	M	-	-	-	-	-	H	H	H

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ELECTIVE - ARCHITECTURAL DEVELOPMENT AND LEGISLATION
Subject Code : 10JAR4.2

Course Objectives:

1. To understand need & relevance of Building Legislations.
2. To create awareness about basis and contents of Development Control Regulations.
3. To understand the Project handover Process.

Content

Unit I
- Introduction to land economics; land speculation and pricing of land; real estate.

Unit II
- Architects role, responsibilities and liabilities during and after Project Completion

Unit III
- Introduction to Architectural development controls and regulations
- Need and purpose
- Type of developmental controls and regulations
- Regulations Controls: brief on Zoning regulations (land use, height, density zoning etc)
- Architectural Controls (building byelaws, environmental Controls, heritage, eco-sensitive, fennel area norms etc);
- Government policies and various schemes

Unit IV
- Agreement and its content; arbitration;

Unit V
- Project Handling: Process and procedure from the inception of the project to its approval (authority) to execution on site.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To understand need and relevance of building legislation.	L2
CO2	To develop an understanding of legal liabilities and obligations as an architect and the importance of code of conduct and ethics.	L2, L3
CO3	To understand the different types of agreements related to construction and the Project handover Process.	L2
CO4	To learn about Arbitration, conciliation for the related benefits.	L2, L3
CO5	To create awareness about basis and contents of Development Control Regulations.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L2	M	M	M	L	L	L	L	H	H	H	M	M	M
CO2	L2, L3	-	H	H	-	-	H	H	M	M	M	H	M	M
CO3	L2	H	H	H	M	M	M	M	M	M	H	H	H	H
CO4	L2, L3	L	L	L	M	M	M	M	H	H	H	H	H	H
CO5	L3	H	H	H	-	-	-	H	-	-	H	H	H	H

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Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars / Presentations	CO1, CO2, CO3, CO4, CO5
CD4	Project Discussions	CO1, CO2, CO3, CO4, CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : ADVANCED STUDY OF THESIS TOPIC
Subject Code : 10JAR5

Course Objectives:

1. To study in detail subject area of the thesis topic.
2. To identify and outline research threads that could be explored in the thesis.
3. To select the most relevant research component.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Summarize relevant research areas to thesis project.	L1. L2
CO2	Demonstrate comprehensively the link between the research and the thesis project.	L2, L4
CO3	Demonstrating various secondary and primary case studies.	L4
CO4	Demonstrating various secondary and primary case studies.	L2, L3
CO5	Resolve problems based on acquired knowledge	L3, L5, L6
CO6	Forms correlation of theories with real life issues	L3, L5, L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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CO1	L1. L2	H	H	H	H	H	H	H	H	H	H	H	M	M
CO2	L2, L4	H	H	H	H	H	H	H	H	H	H	H	H	M
CO3	L4	H	H	H	H	H	H	H	H	H	H	H	H	M
CO4	L2, L3	M	M	M	M	L	L	L	M	M	H	H	H	M
CO5	L3, L5, L6	H	H	M	M	M	M	L	L	L	L	H	H	M
CO6	L3, L5, L6	L	M	M	M	M	H	H	H	H	H	H	H	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4,CO5
CD2	Tutorials/Assignments	CO1,CO2,CO3,CO5,CO6
CD3	Seminars / Presentations	CO1,CO2,CO3,CO5,CO6
CD4	Project Discussions	CO1,CO2,CO3,CO4,CO5
CD5	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5

Subject Name : THESIS PROJECT
Subject Code : 10JAR6

Course Objectives:

1. To prepare a student to independently handle and present all aspects of an architectural design, from its evolution to final solution in totality.
2. To understand the importance of the evolutionary stages of a design process and various techniques required for a successful presentation of an architectural design.
3. To develop in students the ability to handle specific aspects / thrust area of design relevant to the topic.

Project **:** Selected by student and approved by department.

Content

- Large scale project having complexity of urban and architectural resolutions. Culmination of all the skills acquired of architecture. Individual understanding of architectural theory, philosophy and architectural style, Student shall engage in study, documentation, analysis and design process of the project. The theoretical part to be put together in the form of a report and the design solution to be presented in hard/soft copy with a model.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	To use all the skills acquired in the duration of preceding academic courses.	L1, L2
CO2	Methodically self-direct effort by choosing the project of choice, builds capacity to work independently and methodically in a variety of intellectually and professionally demanding contexts.	L2, L3
CO3	Learn to make an original and individual, creative contribution to the academic discipline and/or the professional field in some cases.	L2, L3
CO4	Applies various codes, standards and regulations governing the project	L2, L3, L4, L6
CO5	Demonstrate the ability for decision making required to progress the understanding already developed	L4, L5, L6
CO6	Demonstrate the ideas clearly using detailed physical Model	L4, L6

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars / Presentations
CD4	Project Discussions
CD5	Self- learning advice using internets

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Course Outcomes	Blooms Level	PLO1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PSO 1	PSO 2	PSO 3
CO1	L1, L2	H	H	H	H	H	H	H	H	H	H	H	H	H
CO2	L2, L3	H	H	H	H	H	H	H	H	H	H	H	H	H
CO3	L2, L3	H	H	H	H	H	H	H	H	H	H	H	H	H
CO4	L2, L3, L4, L6	H	H	H	H	H	-	H	M	M	M	H	H	H
CO5	L4, L5, L6	M	-	M	L	L	L	L	L	L	L	H	H	H
CO6	L4, L6	H	-	H	H	H	H	H	MM	M	M	H	H	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4, CO5, CO6
CD2	Tutorials/Assignments	CO1,CO2,CO3, CO4, CO5
CD3	Seminars / Presentations	CO1,CO2,CO3,CO4, CO5, CO6
CD4	Project Discussions	CO1,CO2,CO3, CO5, CO6
CD5	Self- learning advice using internets	CO1,CO2,CO3,CO4, CO6

Subject Name : UNIVERSAL HUMAN VALUES
Subject Code : 10JAR7

Objectives :
The present course deals with meaning, purpose, and relevance of universal human values and how to inculcate and practice them consciously to be a good human being and realize one's potentials.

Course Contents:

Unit I: Love & Compassion

Introduction: What is love? Forms of love—for self, parents, family, friend, spouse, community, nation, humanity and other beings, both for living and non-living, Love and compassion and inter-relatedness, Love, compassion, empathy, sympathy and non-violence, Individuals who are remembered in history for practicing compassion and love. Narratives and anecdotes from history, literature including local folklore , Practicing love and compassion: What will learners learn gain if they practice love and compassion? What will learners lose if they don't practice love and compassion?, Sharing learner's individual and/or group experience(s)
Simulated Situations
Case studies

Unit II: Truth

Introduction: What is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others), Individuals who are remembered in history for practicing this value, Narratives and anecdotes from history, literature including local folklore, Practicing Truth: What will learners learn/gain if they practice truth? What will learners lose if they don't practice it?, Learners' individual and/or group experience(s)
Simulated situations
Case studies

Unit III: Non-Violence

Introduction: What is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence, Ahimsa as non-violence and non-killing, Individuals and organisations that are known for their commitment to nonviolence, Narratives and anecdotes about non-violence from history, and literature including local folklore, Practicing non-violence: What will learners learn/gain if they practice nonviolence? What will learners lose if they don't practice it? , Sharing learner's individual and/or group experience(s) about non-violence,
Simulated situations
Case studies

Unit IV: Righteousness & Peace

Introduction: What is righteousness? ,Righteousness and *dharma*, Righteousness and Propriety, Individuals who are remembered in history for practicing righteousness, Narratives and anecdotes from history, literature including local folklore ,racticing righteousness: What will learners learn/gain if they practice righteousness? What will learners lose if they don't practice it?, Sharing learners' individual and/or group experience(s), Simulated situations, Case studies ,Introduction: What is peace? Its need, relation with harmony and balance ,Individuals and organisations that are known for their commitment to peace, Narratives and Anecdotes about peace from history, and literature including local folklore, Practicing peace: What will learners learn/gain if they practice

peace? What will learners lose if they don't practice it? ,Sharing learner's individual and/or group experience(s) about peace ,Simulated situations,Case studies,

Unit V: Service & Renunciation (Sacrifice)

Introduction: What is service? Forms of service, for self, parents, family, friend, spouse, community, nation, humanity and other beings—living and non-living, persons in distress or disaster. Individuals who are remembered in history for practicing this value.Narratives and anecdotes dealing with instances of service from history, literature including local folklore.

Practicing service: What will learners learn/gain gain if they practice service? What will learners lose if they don't practice it? Sharing learners' individual and/or group experience(s) regarding service.Simulated situations.Case studies Introduction: What is renunciation? Renunciation and sacrifice. Self-restrain and Ways of overcoming greed. Renunciation with action as true renunciation

Individuals who are remembered in history for practicing this value., Narratives and anecdotes from history and literature, including local folklore about individuals who are remembered for their sacrifice and renunciation., Practicing renunciation and sacrifice: What will learners learn/gain if they practice Renunciation and sacrifice? What will learners lose if they don't practice it? , Sharing learners' individual and/or group experience(s),

Simulated situations

Case studies

Text Books:

1. Mookerji Radha Kumud, Ancient Indian Education,
2. Motilal Banarasidass Saraswati Swami Satyananda,
3. Asana Pranayama Mudra Bandha, Bihar School of yoga Joshi Kireet, Education for Character Development, Dharma Hinduja Center of Indic Studies Joshi Rokeach (1973).
4. The Nature of Human Values. New York: The Free Press Ghosh, Sri Aurobindo. 1998. The Foundations of Indian Culture. Pondicherry: Sri Aurobindo

Course Outcomes:

CO	Statement	Blooms Level
	After the completion of this course, students will be able to:	
CO1	Know about universal human values and understand the importance of values in individual, social circles, career path, and national life	L2
CO2	Understand from case studies of lives of great and successful people who followed and practised human values	L2
CO3	Adapt self-actualisation	L3
CO4	1. Become conscious practitioners of human values.	L2
CO5	Apply their potential as human beings and conduct themselves properly in the ways of the world.	L3

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Industrial visit

Table: Mapping of Course Outcomes with Program Learning Outcomes and Program Specific Outcomes (PSOs)

Course Outcome	Bloom's Levels	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2
CO1	L2	**L**	**L**	-	**M**	**L**	**H**	**H**	**M**	-	**H**	**L**	-
CO2	L2	**L**	**L**	-	**M**	**L**	**H**	**H**	**M**	-	**H**	**L**	-
CO3	L3	**L**	**L**	-	**M**	**L**	**H**	**H**	**M**	-	**H**	**L**	-
CO4	L2	**L**	**L**	-	**M**	**L**	**H**	**H**	**M**	-	**H**	**L**	-
CO5	L3	**L**	**L**	-	**M**	**L**	**H**	**H**	**M**	-	**H**	**L**	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3, CO5
CD3	Seminars	CO3
CD4	Self- learning advice using internets	CO4
CD5	Industrial visit	-

Subject Name : AANANDAM
Subject Code : 10JAR8

Course Objective :

1. To instil the joy of giving in young people, turning them into responsible citizens to build up a better society.
2. To inculcate the habit of service in students across the University.
3. Students to be accepted to engage in individual and group acts of service and goodness.

Action Plan:

Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

Inputs

S. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

T. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

Course Outcomes:

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO	Statement	Blooms Level
CO1	Develop a great sense of understanding towards social issues.	L2
CO2	Able to engage in individual and group acts of service and goodness	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3	L	-	-	-	-	-	-	-	-	L	-	-	-
CO2	L3	-	L	-	-	-	-	-	-	L	M	-	-	L

Subject Name : Discipline & Extra Curricular Activities
Subject Code : 10JAR9 (Non Credit)

Course Objective :

1. To develop understanding of community living and team work.
2. To impart good habits and punctuality cleanliness.
3. To develop the understanding of time management in the profession.

Course Outcomes:
At the end of the semester the student will be able to:

CO	Statement	Blooms Level
CO1	Student will be able to develop his personality for farther team work.	L3,L4
CO2	Student will be able to perform well in the cooperate organizations.	L2,L3
CO3	Student will be able to identify his / her duty in office as well as site work.	L5
CO4	Student will be able to distinguish between do's and don'ts in his duty.	L2, L4
CO5	Student will be able in time management which will make them a good professional.	L3

Table: Mapping of Course Outcomes with Program Learning Outcomes and ProgramSpecific Outcomes (PSOs)

Course Outcomes	Blooms Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	LO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3
CO1	L3,L4	H	-	H	-	-	M	H	H	-	-	-	-	-
CO2	L2,L3	-	H	H	-	-	-	H	H	-	-	-	-	-
CO3	L5	-	H	-	H	-	H	-	M	M	--	-	H	-
CO4	L2, L4	H	H	-	-	-	H	-	M	-	M	-	-	H
CO5	L3	H	-	H	H	-	-	-	M	-	H	-	M	M

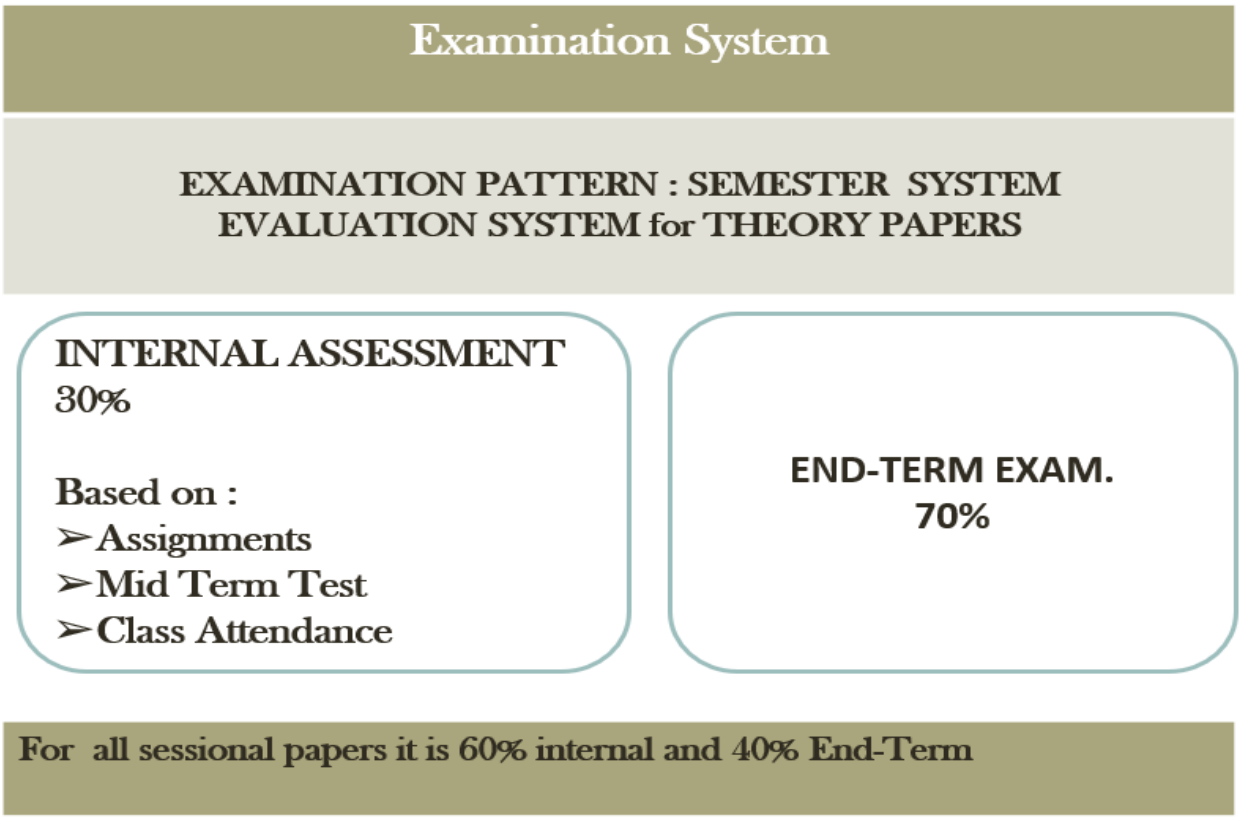
11. TEACHING LEARNING METHODOLOGIES (TLM)

The learning Outcomes -based Approach requires that the Teaching Learning Methodologies should be instrumental in attaining the following well defined learning outcomes relating to undergraduate programme in Bachelor of Architecture :

1. The outcome-based approach, especially in the context of B.ARCH requires a significant shift from teacher-centric to learner-centric pedagogies and from one-way passive to two-way participatory approach.
2. Both teaching and learning should be based on critical thinking.
3. Every subject of B.ARCH should lend itself to well-structured and sequenced acquisition of knowledge and skills.
4. Practical knowledge including an appreciation of the link between theory and practical should constitute an important aspect of the Teaching Learning Methodologies.
5. Teaching Learning Methodologies guided by such a framework, should include:
   (a) Lectures supported by group tutorial work, practical and field-based learning.
   (b) The use of prescribed text-books E-learning resources and other indispensable study materials.
   (c) Relevant, useful and applicable project work in which some of them may be team-based.
   (d) Activities be designed to develop generic/transferable and subject-specific skills.
   (e) Internship of Architecture related fields.
   (f) Regular and frequent visits to field sites and industries.
   (g) Availability of primary research facilities.

S. No.	Content
1	Lectures & Presentations
2	Tutorials
3	Case Studies
4	Art & Graphic Works
5	Group Discussion Sessions/Panel Discussion
6	Site Visit
7	E-Learning Tools (AutoCAD, Photoshop, Sketch up, 3D Max, Revit)
8	Model/Sculpture Making
9	Live Projects (Thesis/Dissertation

12. ASSESSMENT AND OUTCOME MEASUREMENT METHODS (AOMM)



Marks Evaluation System/Grade Distribution:-

Marks	Grade	Marks	Grade
90.1-100 %	O [Outstanding]	55.1-60 %	B [Above Average]
80.1-90 %	A+ [Excellent]	50.1-55 %	C+ [Average]
70.1-80 %	A [Very Good]	45.1-50 %	C [Pass]
60.1-70 %	B+ [Good]	Below 45 %	F [Fail]

Criteria For Passing:

- To pass in each subject, a candidate is required to obtain minimum 45% marks in Internal Evaluation & End-Term examinations or total 50% aggregate in each Semester.

Due/Reappear Papers:

- Papers in which student fails are treated as "due papers".
- Student can appear for Due of Odd Semester with Odd
- Semester Exams and Due paper of even Semester with Even Semester Exams.

Rules for Promotion:

- The Students are required to complete stage-I(First 3 academic years/6 semesters) max. Within 5 years. The stage-II shall be of 2 academic years/4 semesters including 1 year of practical training , as per COA norms

Quality Improvement Procedures:

- Moderation of Question Papers
- Scrutiny – Comprehensive checking of Awards
- for errors and omissions

- Question Papers and Examiners Reports put up in BOS ,Meetings for Suggestions / Improvement

Committees for Examination System:

- Flying Squad
- Unfair Means Adjudication Committee
- Grievance Redressed Committee

Question Paper Setting:

Mid Term Exam: Set by Internal Examiner

End Term Exam: Q.P. set by External Paper Setters appointed from the Panel to be approved by the Dean

Practical Training and Study Tours

Practical Training is undertaken during VIII & IX semester for a period of one year(40 weeks/280 days).

The objective is to make the students understand the practical aspect in architectural practice and executions of projects.

Study tours are organized in regular interval of time for the benefits of students of B.Arch. 1st, 2nd& 3rd Year.

13. TEACHERS' TRAINING

1. The institutions shall encourage the faculty members to involve in professional practice including research and TEACHER TRANING PROGRAM organized by COUNICIL OF ARCHITECTURE.
2. The institutions shall encourage exchange of faculty members for academic programmers.
3. All faculty members must be encouraged to actively pursue practice / research, Architectural International Workshops and Architectural Seminar.

14. KEY WORDS

LOCF, CBCS, Course Learning Outcomes, Employability, Graduate Attributes Communication Skills, Critical Thinking, and Descriptors, Architecture, , Planning, Objectives, Services, Structure, Design, Drawings, Arts, Graphics, Programs outcomes, Sustainable Development, Urban Design, Training, Dissertation, Thesis, Reports,